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Université de Montréal

The parenting styles and the feeding practices of parents of  
diabetic adolescents

par

May Slim

Département de nutrition

Faculté de médecine

Mémoire présenté à la Faculté des études supérieures en vue  
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Université de Montréal  
Faculté des études supérieures

Ce mémoire intitulé:

The parenting styles and the feeding practices of parents of diabetic adolescents

Présenté par:  
May Slim

a été évalué par un jury composé des personnes suivantes :

..... Dr. Irène Strychar.....  
président- rapporteur

.....Dre. Marie Marquis.....  
directrice de recherche

..... Dr. Olivier Receveur.....  
membre du jury

## SUMMARY

Parenting styles as well as parents' practices are classified on the basis of two dimensions, warmth and control, into three groups: authoritarian, authoritative, and permissive. The main objectives of this study were to explore the different desired parenting styles of parents of diabetic adolescents aged between 10 to 15-year old in the Quebec region, their practices regarding feeding and treatment, and the relation between parents' practices and the adolescents' autonomy regarding diet and treatment, as perceived by their parents. The secondary objective of this study was to explore whether these feeding and treatment practices change between a mother and a father and whether these practices change between genders.

Twenty-nine parents of diabetic adolescents were recruited at Saint-Justine Hospital, a pediatric hospital located in Montreal. Sixteen of them were mothers and thirteen were fathers. Data were obtained through individual semi-structured telephone interviews and were part of a larger research project. The interviews were recorded and then transcribed. Qualitative analyses of recordings were performed using SEMATO.

Results showed that the majority of parents encourage warmth and responsiveness in upbringing their adolescents; however, in practice, they used both warmth and control factors.

In the context of feeding, parents were also responsive and demanding, with mothers being more controlling than fathers. Another finding was that fathers practiced more controlling actions with their boys than with their girls, whereas mothers' practices were not considerably different. Most diabetic adolescents were perceived capable of managing their diet.

As for the domain of treatment, the warmth factor dominated control in the majority of parents' desired styles. Data analyses revealed the exercise of both warmth and control in managing diabetes treatment, with mothers being more controlling than

fathers. With respect to parental practices and adolescents' perceived capacity of their treatment, the majority of adolescents perceived themselves as autonomous. Warmth was associated with increased perceived adolescents' autonomy toward their treatment.

Future work is needed to better understand parenting styles and practices of parents with diabetic adolescents. This may be useful in guiding health professionals in their work with diabetic adolescents.

**Key words:** parenting styles, parenting practices, diabetes, adolescents, control, warmth, autonomy, diet, treatment.

## SOMMAIRE

Les styles parentaux et leurs pratiques, caractérisés par le degré d'exigence et d'empathie, sont classifiés sous trois groupes: autoritaire, démocratique, et permissif. Ce mémoire a visé plusieurs objectifs. D'abord, il a identifié les styles parentaux que des parents de diabétiques âgés de 10 à 15 ans de la région du Québec, qualifient de désirables. Il a aussi examiné les pratiques parentales dans le contexte de l'alimentation et du traitement non alimentaire du diabète. Les relations entre ces pratiques parentales et la perception que les parents ont de la capacité de leur enfant à gérer leur alimentation et le traitement de leur diabète ont aussi été explorées. Comme objectif secondaire, l'étude visait à examiner si les styles et les pratiques des parents changent selon que le parent soit une mère ou un père et s'ils changent avec le sexe des jeunes diabétiques.

Vingt neuf parents de jeunes diabétiques soit 16 mères et 13 pères ont été recrutés à l'Hôpital Sainte Justine, un hôpital pédiatrique de Montréal. Les données issues d'un plus vaste projet furent obtenues par entrevues téléphoniques semi-dirigées individuelles. Les entrevues furent enregistrées puis retranscrites pour être analysées avec le logiciel SEMATO.

Les résultats de cette étude ont montré que les parents, en général, recommandent d'être empathique à l'égard de l'encadrement de leur adolescent diabétique; cependant, en pratique, les analyses suggèrent qu'ils déploient à la fois de l'empathie et de l'exigence.

Dans le contexte de l'alimentation, il a été exposé que les parents utilisaient les deux dimensions, mais les mères étaient plus exigeantes que les pères avec leurs adolescents diabétiques. Il fut aussi démontré que les pères étaient plus exigeants avec leurs garçons diabétiques tandis que les pratiques des mères ne semblaient pas différentes. La sensibilité exprimée par les parents a été fortement reliée, à une perception d'une plus grande autonomie chez le jeune.

Quant au contexte de traitement, l'empathie a dominé l'exigence dans la majorité des styles désirés des parents, et les mères étaient plus exigeantes que les pères à l'égard de la gestion du traitement non alimentaire du diabète. L'analyse de données a révélé l'exercice d'empathie et l'exigence à l'égard du traitement. En ce qui concerne la relation entre les pratiques parentales et la capacité de l'adolescent à l'égard du traitement, la majorité des diabétiques sont perçus comme étant autonomes. L'empathie des parents a aussi été associée à une perception d'une plus grande autonomie de l'adolescent à l'égard du traitement comme perçu par leurs parents.

Plusieurs pistes de recherches sont proposées pour mieux comprendre les styles et pratiques parentales des parents d'adolescents diabétiques et possiblement guider les professionnels de la santé œuvrant auprès de ces clientèles.

**Mots clés:** les styles parentaux, les pratiques parentales, diabète, adolescents, exigence, empathie, diète, traitement.

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**LIST OF ABBREVIATIONS AND ACRONYMS**

<b>CDA:</b>	Canadian Diabetes Association
<b>DCCT:</b>	Diabetic Control and Complications Trial
<b>PAHO:</b>	Pan American Health Association
<b>WHO:</b>	World Health Organization

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**DEDICATION****I dedicate this work to my father .....**

Thank you for your unconditional support. I am honored to have you as my father. Thank you for giving me a chance to prove and improve myself through all my walks of life. Your words of encouragement and push for tenacity ring in my ears. You are a lot of who I am today. You taught me that even the largest task can be accomplished if it is done one step at a time. You taught me honesty, pride, humility, forgiveness, love, integrity and most of all respect.

*Thank you for believing in me  
when I found it difficult  
to believe in myself...*

*Thank you for putting so much  
thought and care and imagination  
into our friendship...*

*Thank you for always being there for me.*

*Thank you for being a friend to me*

**This work is also dedicated to my dearest son, Bassel.....**

Each page I have written represents time spent away from him. It is really nice to remember that on the day the last word was written in this work, you turned TWO!

## 1. INTRODUCTION

Diabetes is not a recently diagnosed disease (Geoffroy and Gonthier, 2003). It was early in the year of 1552 B.C when an Egyptian physician, Hesy-Ra, noticed that polyuria is a warning sign (Canadian Diabetes Association CDA, 2007). Then, in the year 70 A.D, the Greek physician, Arateus, presented the name “diabetes”, a Greek word which means “siphon”. He summarized the symptoms of diabetes in four P’s: Polyphagia or frequent eating, Polydipsia or frequent drinking, Polyuria or frequent urination and Polyasthenia or frequent weakness.

Although we knew this disease many centuries ago, nothing new was added to the research of diabetes until the 19<sup>th</sup> century. By that time, researchers were able to define the disease very well (Geoffroy and Gonthier, 2003). In 1869, Paul Langerhans discovered that the pancreas is a gland composed of a million of micro-islands. Later, a French scientist, Gustave Laguesse suggested, in 1893, that these islands “must produce a hormone or a substance” and have a certain relation with diabetes and glycemia levels. Research continued and finally, the greatest discovery occurred in 1921, when two Canadian investigators, Frederick Banting and Charles Best, from the University of Toronto, extracted insulin from the pancreas of one dog and injected it into another de-pancreatized dog. They proved that insulin definitely controlled the blood glucose of the diabetic dog (Da Silva, 2007).

Since there is no cure for diabetes, a lifetime control is required to keep blood sugar in the target range. This control always includes diet, exercise, and often includes insulin injections or medications among other restraints (Geoffroy and Gonthier, 2003). Since insulin discovery, the lives of diabetics have changed from a life-threatening to a fairly normal one (Loring, 1999). In addition to the short term complications that accompany diabetes, diabetes is also linked to a number of serious long-term complications such as vision loss, heart diseases, and renal failures (Geoffroy and Gonthier, 2003). After a ten-year study, the Diabetes Control and Complications Trial (DCCT), in 1993, revealed that there is a direct relation between many of these long-term complications and the glyceemic control. It also showed that

keeping blood sugar level as normal as possible can prevent or, at least, delay the occurrence and slow the evolution of serious outcomes (DCCT, 1993). As the importance of a well-balanced glycemia is now clear, it is essential to explore the determinants of adherence and glycemic control problems in diabetics, especially during adolescence (DCCT, 1994). From the little research known about adherence and blood sugar problems during adolescence (Hauser et al., 1990; Jacobson et al., 1994; Anderson et al., 1997), it was quite evident that the family plays a crucial role in different domains of a diabetic adolescent's life (Davis et al., 2001; Hanna et al., 2003; Lewin et al., 2006).

Parenting an adolescent is, by itself, a complicated responsibility that faces every parent. Thus, there is no doubt that being a parent of a diabetic adolescent is much more problematic due to the "complex and demanding" (Harris et al., 2001) regimen of diabetes and the challenging and serious tasks that accompany adolescence. Parenting is bidirectional, i.e. it influences children and it is influenced by children, particularly their illness (Harris et al., 2001). Clearly, different parenting styles have different impact on children, and consequently, on their behavior. "Warmth and Control" are two prominent features of parenting children, especially children with diabetes. The more the parents show warmth, the more their children adhere to diabetes regimen, and consequently, better glycemic control and health outcomes (Harris et al., 2001; Lewin et al., 2006). It was demonstrated that parental warmth reduces family conflict and fosters cohesion between parents and their children, leading to better performance in diabetes management; whereas, strong parental control or restrictiveness is accompanied with worse glycemic control (Davis et al., 2001; Hanna et al., 2003). On the basis of these two dimensions, *warmth* and *control*, Maccoby and Martin (1983) found that parents fall into three different styles, namely authoritarian, authoritative and permissive.

Authoritative parents, who show little strictness and strong warmth, were associated with better adherence and glycemic control in children with diabetes (Davis et al., 2001; Harris et al., 2001). Parents of children with diabetes must demonstrate a high



level of love and involvement, ranging from physical involvement in diabetes care in younger children to verbal involvement in adolescents to help them gain their autonomy even in self-care (Harris et al., 2001). Diabetes control was better maintained in children whose parents were more emotionally supportive, had better resolved their grief about their children's diabetes, and were less sad and angry (Anderson et al., 1997). Parents constitute the major part of the feeding environment of children and influence their feeding behaviors and preferences. In general, children choose to eat the foods that they are served and that are available at home. Because parents are responsible for making food available to their children, they represent a strong impact on their children's preferences, and hence, consumption (Birch, 1998; Birch and Davison, 2001; Tibbs et al., 2001; Benton, 2004). Besides their parental style, which refers to the attitudes and behavior of parents towards their children in general, parents' feeding practices also influence their children's food patterns. The latter refers to the behavior of parents towards their children in the feeding context.

Since nutrition is a basis in the management of Type 1 diabetes and parents are the basis in making food available, then the manner by which parents offer food represents another basis in diabetes. Patton et al. (2006) were the first to consider the health outcomes of parent-child relationship during mealtime. Results of this study demonstrated that parents' feeding practices were significantly related to dietary adherence and blood sugar control, with coercive parenting (i.e. authoritarian) being the most risky since it can undermine the child's innate ability, promoting disruptive eating behavior. Knowing that the adolescence may be the most difficult period for a young person to be diagnosed with diabetes as it is most often accompanied by serious health outcomes due to being less compliant in treatment, it will be of interest to explore how different family feeding styles affect adolescents in the care of their illness. Indeed, it may reveal how parents shape their children's eating behaviors, and in turn, their health outcomes. This study specific to the Quebec cultural context will illustrate different feeding practices and their effects on diabetes care as reported by parents of diabetic adolescents.

## **2. LITERATURE REVIEW**

In order to better understand the overview of diabetes in children and adolescents, a general review investigating the different styles of parenting in diabetic adolescents will be presented. First, the prevalence of diabetes in these youngsters will be presented. Due to the various complications that accompany this age period, adolescence will be intensely considered including the new developmental changes that accompany it as well as the difficulties that an adolescent faces during this stage of life, especially in disease management. The different parenting styles will be investigated, particularly when a child is diagnosed with Type 1 diabetes. The impact of each style in shaping the parent's child feeding practices as well as its effect on determining the child's eating behavior will also be documented. Finally, as an indicator of parenting styles, different feeding practices exercised during mealtimes with chronically-ill children and adolescents, particularly diabetic ones, will be reported.

### **2.1 Prevalence of Diabetes in Adolescents**

Diabetes is a chronic, incurable disease that occurs when either the pancreas does not produce enough insulin, or the body cannot efficiently use the insulin produced (Diabetes Quebec, 2004; World Health Organization, 2007) leading to an excess sugar in the blood. Insulin is a hormone, produced by the beta cells of the pancreas, which regulates sugar levels in blood. There are more than 180 million people worldwide who have diabetes and this number is likely to more than double by 2030. The prevalence of Type 1 in ten to fourteen years old is about twenty two per hundred thousand per year (National Diabetes Educational Program, 2006). The World Health Organization (WHO) expects that diabetes deaths will increase by more than fifty percent in the next ten years (WHO, 2007). More than 2 million Canadians suffer from diabetes, and this number is expected to reach 3 million by the end of the decade (CDA, 2007). In Quebec, about 550,000 people have diabetes, and it is estimated that 225,000 of them are not aware of it. As anticipated by the WHO, this number will double by the year 2025 (Diabetes Quebec, 2004) as the Canadian

population ages and obesity rates increase (CDA, 2007). This increase will have a major impact on society, especially since thirty percent of diabetics will suffer serious problems such as blindness, kidney diseases, and heart diseases, thereby reducing quality of life and survival period (Diabetes Quebec, 2004; CDA, 2007). Financially, diabetes costs the Canadian Health system about \$13.2 billion every year, and as the number of diabetics rises, the costs will rise too, reaching \$19.2 billion a year by 2020 (CDA, 2007).

There are two main Types of diabetes: Type 1 and Type 2. Type 1 diabetes, formerly called juvenile diabetes or insulin-dependent diabetes, is usually first diagnosed in children, teenagers, or young adults. With this form of diabetes, the beta cells of the pancreas no longer make insulin because the immune system attacks the insulin-producing beta cells in the pancreas and destroys them (National Diabetes Educational Program, 2006). Treatment for type 1 diabetes includes taking insulin, making wise food choices, being physically active, and controlling blood pressure and cholesterol. Type 2 diabetes, formerly called adult-onset diabetes or noninsulin-dependent diabetes, is the most common form of diabetes. Ninety to ninety-five percent of diabetics have Type 2 diabetes. This form of diabetes usually begins with insulin resistance in which fat, muscle, and liver cells do not use insulin properly. At first, the pancreas maintains with the added demand by producing more insulin. In time, however, it loses the ability to secrete enough insulin in response to meals. People can develop Type 2 diabetes at any age- even childhood; however, the risk expands after the age of forty-five. Being overweight and inactive increases the chances of developing Type 2 diabetes (Geoffroy and Gonthier, 2003; Diabetes Quebec, 2004; CDA, 2007).

This high prevalence of diabetes, the new epidemic by the year 2025 (Diabetes Quebec, 2004), drives researchers to further explore and understand the determinants of glycemic control particularly during adolescence due to the various difficulties that accompany this period, mainly adherence to the disease's medical and dietary regimen.

## 2.2 Adolescence and Diabetes

Adolescence is the period during which a child is no more a child and not yet an adult (Geoffroy and Gonthier, 2003). Henri Lehalle (1995) sees that adolescence can never be treated as a part separable from childhood; adolescence, itself, determines what passes in the present life. The adolescence phase is a new unfamiliar stage of life (Fleming et al., 2002) that has its own developmental tasks which consist of certain skills, functions, or attitudes essential for adult competency (Lehalle, 1995). These tasks consist of the adolescent acceptance of his own body, achieving mature relationships with both sexes, becoming emotionally independent from his parents, behaving in a socially mature manner, and much more. By achieving these tasks, the adolescent will create his own identity (Nightingale, 1993; Lehalle, 1995). Adolescence goes through a period of adjustment that involves interaction of physical or biological, cognitive, psychological, and social changes moving from childhood to maturity (Lehalle, 1995; Claes, 2003; Geoffroy and Gonthier, 2003). In response to the physical changes, young adolescents begin to have their own concern with their physical appearance and body image. They spend hours anxious about their appearance; they want to “fit in” with their peers (Lehalle, 1995); they search their own style (Lehalle, 1995; Claes, 2003). As a result of their growing cognitive abilities, adolescents are now able to analyze, to argue situations, to reason, to criticize, to think about their future, and to set personal goals (Lehalle, 1995; Claes, 2003). They seek to become independent, autonomous individuals. Autonomy, during this stage of life, reveals his psychosocial development (Hanna et al., 2005). Emotionally, adolescents are creating their own sense of identity- the self-concept which describes their own set of beliefs and the self-esteem which refers to the evaluation of their own competences (Geoffroy and Gonthier, 2003). The social development of adolescents takes place mainly in their relationship with their peers and with their family (Hanna et al., 2005). The influence of peers, whether negative or positive, is of critical importance in a teen’s life (Pendley et al., 2002). The amicable relationships, during this stage of life, are potently empowered and the opinion of peers is highly appreciated (Lehalle, 1995). In brief, the major task of the

adolescent is to become his own person. He has to face every challenge in all aspects in order to attain his maturity.

Adolescence should never be seen as a tragedy but as a stage of life that everyone must pass through and try to benefit from as much as possible (Claes, 2003). This phase of life is difficult for a young healthy adolescent to cope with, but definitely, it is much more complex and serious for a diabetic adolescent (Claes, 2003) due to the complex and demanding regimen of diabetes (Davis et al., 2001). Thus, in addition to the new changes that a normal adolescent face during adolescence, the young diabetic has additional tasks to integrate to his everyday life (Fleming et al., 2002; Geoffroy and Gonthier 2003; Dickinson and O'Reilly, 2004) such as blood glucose monitoring, performing insulin injections, following a regular balanced eating pattern, engaging in physical exercise (Glasgow et al., 1986; Pendley et al., 2002), and following other safety pre-cautions as wearing diabetic identification tags (Glasgow et al., 1986).

In fact, adolescence is the critical age for a child to be identified as diabetic (Kyngas et al., 1998; Fleming et al., 2002; Geoffroy and Gonthier, 2003). Adolescents with diabetes are not only struggling with their own new development tasks but also coping with the high demands of their illness (Geoffroy and Gonthier, 2003; Dickinson and O'Reilly, 2004). Adolescence is associated with deteriorating metabolic control (DCCT, 1994) and poor adherence mostly during mid-adolescence (Palmer et al., 2004; Hanna et al., 2005). One factor that contributes to this increase in lack of diabetes management is the problem of non-compliance with the diabetes regimen.

Compliance refers to the extent to which a patient adheres carefully to medical advice and treatment to avoid the complications associated with diabetes. It also exposes how likely people are to take their medication (Kyngas et al., 1998). As previously mentioned, the regimen of Type 1 diabetes is extremely complex (Glasgow et al., 1986; Davis et al., 2001). It is, therefore, not surprising that adolescents show low levels of adherence to diabetes regimen (Glasgow et al., 1986). Few lines showing

the different barriers that the diabetic adolescent faces in his struggle against the disease will be presented.

### 2.3 Diabetes Barriers to Adherence

The Barriers to Adherence Questionnaire was designed to assess factors that may be obstacles to Type 1 diabetes regimen adherence (Glasgow et al., 1986). This problem of adherence is affected potently by several factors or barriers (Delamater, 2006). Glasgow et al. (2001) have identified several internal (physical), psychosocial, external (systems), and cultural barriers that strongly impede compliance (Figure 1).

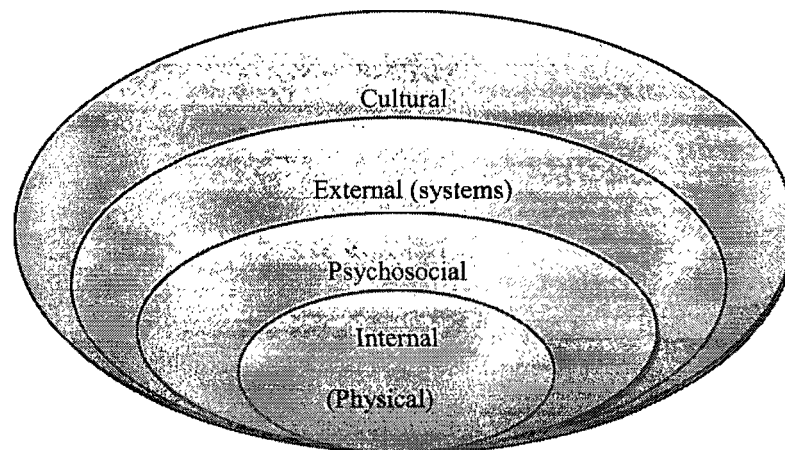


Figure 1: The diabetes compliance barriers (adapted from Glasgow et al., 2001)

The internal or physical barriers, those that are rooted in one's own disabilities such as implications of dialysis, reduced or absent visual capacity have shown their own influence on compliance with diabetes regimen, and in turn on diabetes management (Coonrod, 2001). The psychosocial barriers are defined as psychological and interpersonal factors such as depression, stress, and perceived seriousness of the illness, its complications and its treatment (Glasgow et al., 2001). External barriers, such as family relationships, also play a central role in compliance. Low levels of conflicts (Davis et al., 2001; Lewin et al., 2006), high levels of family cohesion (Davis et al., 2001; Lewin, 2006), and good communication (Hanna et al., 2003) were all shown to be strongly linked to better compliance. Social support from health care staff serves to neutralize the effect of stress on diabetes management (Kyngas et al., 1998; Zgibor

and Songer, 2001; Delamater, 2006). Another external factor is the diabetic adolescents' relationship with their peers. During this period of life, adolescents develop strong relationships with their peers and spend a lot of "unsupervised time" with them (Pendley et al., 2002). From childhood to adolescence, this relation becomes very intimate and this intimacy has been seen as an important step for an adolescent with diabetes as it encourages the young diabetic to open his heart to his friends and share information about his illness (Pendley et al., 2002). A diabetic adolescent who maintains an amicable, motivating relationship with his peers shows better compliance (Kyngas et al., 1998; Claes, 2003; Geoffroy and Gonthier, 2003). A diabetic adolescent fights to fit in with his peers, and if this is difficult due to his illness, he will neglect his diabetes regimen and self-care just to be a part of this group, no matter what the consequences may be (Kyngas et al., 1998). In addition to these barriers, it was found that cultural barriers (Tripp-Reime et al., 2001) also have their own impact on compliance with the diabetes regimen, and thus diabetes management. No doubt that many factors interfere in the diabetic's behavior, but still the parents play the significant role. Parents and their parenting styles are different from one to another, and thus, the consequences of their style on their youngsters are different too.

#### **2.4 Parenting Styles**

Parenting is a complex duty that involves a set of different behaviors working together to raise children. Every parent, without exception, has his own way or style of raising his children from birth to adulthood. Although parents differ in their ways of control, socialization and the extent they do so, their role of teaching and controlling their children stays their primary aim. In 1971, Baumrind explored the parenting practices related to children's adjustment and found that children- who showed high self-esteem, self-control, and were successful- were raised in a house that was full of love, demanding but understanding. However, those children who were failures in most aspects of life had parents that were hard, demanding and not understanding and loving. In 1983, Maccoby and Martin expanded Baumrind's idea

and defined parenting style on the basis of two dimensions: *Responsiveness* or warmth indicates how much warmth, affection, acceptance, and involvement parents show their children. *Demandingness* or behavioral control refers to the extent to which parents exert control on their children, supervise them, and demand mature behaviors. Combining these two factors, Baumrind (1991) classified parents into four categories: authoritarian, authoritative, and permissive indulgent and permissive neglectful. The definitions of these styles differ depending upon social context, developmental period, and method of assessment (Baumrind, 1971). Parents generally do not use only one style, but there is usually a dominant category that emerges. In figure 2, the four different parenting styles are demonstrated (Maccoby & Martin, 1983; Pan American Health Organization PAHO, 2005).

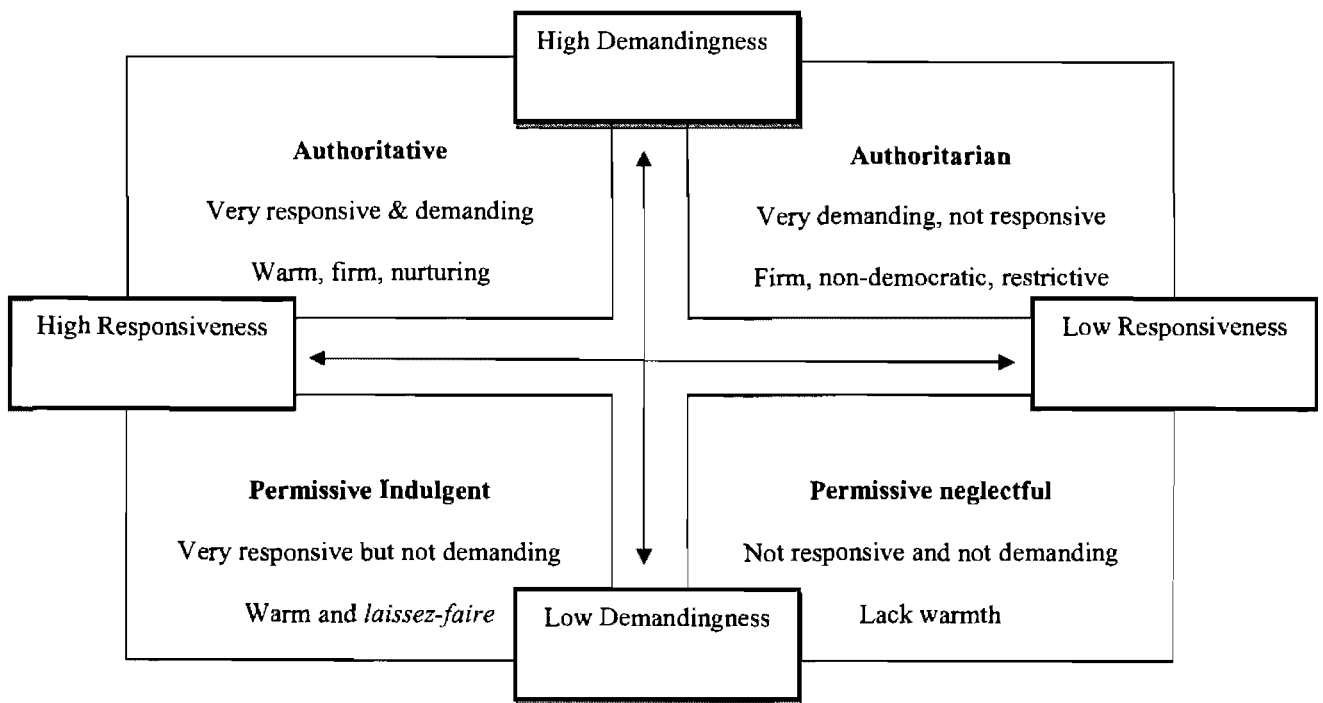


Figure 2: Different styles of parenting (PAHO, 2005, adapted from Maccoby and Martin, 1983)

**Authoritarian** parents are highly demanding, directive and irresponsible to their children's needs. They are highly controlling, non democratic, insist on “no back-talk”. They set rules that must be followed, and they monitor their children’s



activities carefully. They tend to be stricter and display a low level of trust and communication with the child (Maccoby and Martin, 1983; Baumrind, 1991; Aunola et al., 2000). This control can also be psychological whereby the adolescent feels devalued and criticized. This parenting style seems to foster dependence on adult control and guidance. Children of these homes tend to be more passive. They show low academic performance (Lamborn et al., 1991; Paulson, 1994; Weiss et al., 1996; Aunola et al., 2000), lack of interest in school (Steinberg et al., 2006), less openness to society and experience, abuse of alcohol and drugs, and lack of self-confidence and self-esteem (Lamborn et al., 1991; Weiss et al., 1996).

**Authoritative** parents are demanding, but responsive; assertive, but not restrictive. They are usually very involved, participate in the child's life, maintain a high level of communication and trust with the child. They set boundaries, and allow significant autonomy within those boundaries (Maccoby and Martin, 1983; Baumrind, 1991; Aunola et al., 2000). Children from these homes generally seem to be high academic performers, have positive attitudes toward school (Paulson, 1994; Steinberg et al., 2006) and are usually more cognitively and psychologically competent than other children. They show greater responsibility, consume drugs and alcohol scarcely, and are less prone to troubles and problems (Weiss et al., 1996; Lamborn et al., 1991; Steinberg et al., 2006).

**Permissive Indulgent** parents are more responsive than demanding and have a warm, nurturing, child-centered attitude. They do not demand mature behavior and allow the child much autonomy and self-regulation (Maccoby and Martin, 1983; Baumrind, 1991; Aunola et al., 2000). They exert very low control on their children. Children who were raised in such an environment are less self-regulated, and are low academic performers (Baumrind, 1991; Lamborn et al., 1991; Paulson, 1994; Weiss et al., 1996; Steinberg et al., 2006). They consume alcohol and drugs more often, are more likely to get in trouble, and are much more oriented towards their peers (Lamborn et al., 1991; Weiss et al., 1996).

**Permissive Neglectful (also rejecting)** parents are neither responsive nor demanding (Baumrind, 1991; Aunola et al., 2000). They do not monitor or supervise their children and do not support or encourage the child's self-regulation. They leave their children do whatever they want; they don't spend much time with them and lack nurturing behavior. They are uninvolved. Children of this non-controlling household have very low academic achievements and are the least competent of all. They are highly impulsive and aggressive (Baumrind, 1991; Lamborn et al., 1991; Paulson, 1994; Weiss et al., 1996; Steinberg et al., 2006). They differ from all other adolescents in their high incidence of externalizing problem behavior, including drug and alcohol use (Baumrind, 1991; Lamborn et al., 1991).

In trials investigating effective parenting styles, researchers found that authoritative parenting is associated with a wide range of positive adolescent outcomes such as better academic performance (Lamborn et al., 1991; Weiss et al., 1996), increased competence, autonomy, and self-esteem (Baumrind, 1991; Lamborn et al., 1991), and less deviance (Baumrind, 1991).

Since diabetes regimen is complicated, the diabetic patient, particularly the diabetic adolescent, needs continuous family support to better manage his illness (Davis et al., 2001). In addition to their help in injecting insulin or preparing a healthy diet, parents should also show control, love and involvement (Harris et al., 2001). However, the degree to which parents demonstrates these feelings differ with the style they exercise, and thus, the consequences on their young diabetic differ also.

#### **2.4.1 Parenting Styles in Families with Diabetic Adolescents**

A diabetic child's behavior, and in turn his diabetic control are the result of a mesh of factors of parenting and the social environment. Research has demonstrated that different parenting styles affect the child in different ways and consequently his diabetes (Harris et al., 2001).

While one may think that there are numerous ways to parent as mentioned previously, Maccoby and Martin (1983) classified parents into four groups. They

suggested that parents are either child-centered (responsive) or parent-centered (demanding). Child-centered parents will be highly responsive to their diabetic children's needs; they will encourage them for good performances such as maintaining a low blood glucose level, while parent-centered parents will exert high demands on their diabetic children and may punish them in case of misbehavior. For example, low demanding parents will ask very little and allow their children to do whatever they want even skipping an injection if the child doesn't feel like doing so (Harris et al., 2001).

Research has shown that authoritative parenting (high demanding and high responsive), characterized by warmth, control, and low levels of strictness and coercive behaviors (Maccoby and Martin, 1983; Baumrind, 1991; Davis et al., 2001; Harris et al., 2001), is associated with better results in controlling diabetes. Children who are raised in such household show better compliance and performance (Davis et al., 2001; Harris et al., 2001). Moreover, Davis et al. (2001) has shown that parental warmth explained a variation of twenty seven percent in diabetes regimen adherence ratings. Authoritarian parenting (high demanding, low responsive), characterized by high level of restrictiveness and punishment, has significant negative effects on children, and in turn, on diabetes management (Davis et al., 2001; Harris et al., 2001). In a study to explore how adolescents with diabetes perceived the actions of their parents in relation to compliance with self-care, Kyngas et al. (1998) has shown that the actions of parents described as motivating (ex. supportive) and accepting (ex. influence them, showed no force) were associated with better compliance with their self-care. In contrast, disciplined controls by parents (ex. ask and insist for self-care) were linked with poor compliance with their self-care.

According to Harris et al. (2001), parents should retain three pertinent factors: control, involvement, and affection, and they should adjust how and when to introduce these factors in order to build a successful relation with their children. Parents' involvement level may differ with age (Roberts et al., 1984). For example, younger children need more love, involvement and control, and as they grow up to

adolescence, they need a lower level of control. Consistent with these findings, Anderson et al. (1997) demonstrated that parents who showed greater involvement had children who better adhere to diabetes regimen, which in turn results in better health outcomes. Harris et al. (2001) also found that loving and supportive parents have children with few hospitalizations. Punishing a child for misbehavior is only a source of stress for the child and is not linked to adherence or to glycemic control (Davis et al., 2001). Furthermore, Anderson and Coyne (1991) have introduced the concept of “miscarried helping” which suggests that young diabetics may feel angry with the great concern the parents show for their health and self-care that may result in refusal of adolescents to comply with the regimen, leading to poorer metabolic outcomes. A critical issue that parents face in their relation with their children is the transfer of responsibilities of diabetes management (Harris et al., 2001; Geoffroy and Gonthier, 2003; Hanna et al., 2003; 2005), with the development of autonomy in diabetes management being the essential factor in this complicated process.

For many parents, the transfer of responsibility of diabetes management is unsuccessful. Although parents are recommended to be involved in diabetes management as a means toward achieving better metabolic control, they should be aware of being over-involved since this doesn't allow adolescents with diabetes to develop competence (Hanna et al., 2005). In transferring the responsibility, parents should take into consideration the extent to which the adolescent is ready to accept the new tasks of self-control of his illness (Geoffroy and Gonthier, 2003) taking into account his age and his cognitive level (Harris et al., 2001). Wyoski et al. (1996) revealed that transferring responsibilities should take place in a gradual progressive manner since a sudden transfer of excessive duties for diabetes management is associated with poor treatment adherence and reduced diabetes outcomes. For example, Wyoski et al. (1996) stated that when transferring diabetes management responsibilities, the child maturity level was a strong predictor of glycemic outcomes. Moreover, Wyoski and Greco (2006) found that pre-mature withdrawal of parental involvement, i.e. before the developmental readiness of the diabetic, was associated

with poor diabetes outcomes, whereas continued parental support and monitoring were associated with better outcomes.

Lewin et al. (2006) tested a model (Figure 3) showing the pathways by which family factors affect metabolic control through child adherence.

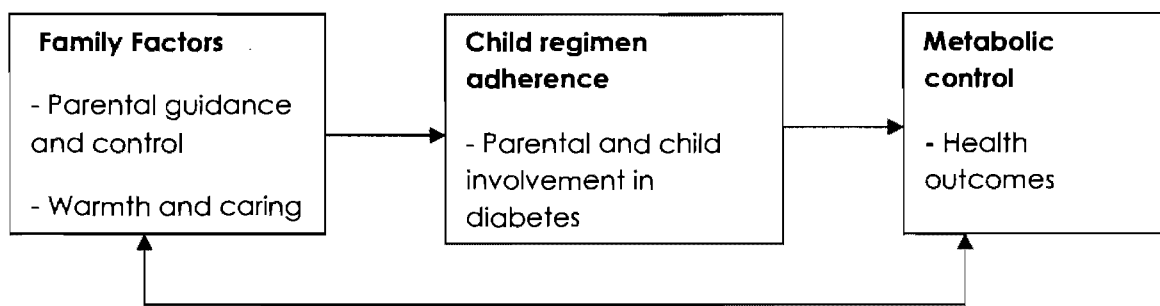


Figure 3: A model of family factors, regimen adherence, and metabolic control (adapted from Lewin et al., 2006)

Regression analysis of this study indicated that family factors accounted for thirty four percent of the variance in metabolic control. It also revealed that family functioning and adherence, combined with demographic variables (ex. ethnicity, marital status, family size), explained forty nine percent of the variance in metabolic control (Lewin et al., 2006).

In summary, family functioning is strongly linked to regimen adherence and glycemic control in adolescents with Type 1 diabetes. Family conflicts have a negative impact on children adherence behavior and subsequent metabolic control (Davis et al., 2001). Adolescents who reported more negative relationship with their parents suffered poor diabetes management and metabolic control (Hanna et al., 2005). Family support was a strong predictor of the relation between parents and their diabetic adolescents and thus on their diabetes management (Hanna et al., 2005). Communication was also documented to foster adolescent decision making and independence, while parent-adolescent conflicts harmfully affected the children's behavior and in turn, their diabetes management (Wyoski et al., 1996; Davis et al., 2001; Geoffroy and Gonthier, 2003; Hanna et al., 2005). Another important aspect

for maintaining good metabolic control is to adhere perfectly to the dietary diabetes regimen. Eating healthily keeps blood sugar level as normal as possible, thereby avoiding serious health complications (Powers et al., 2002; Geoffroy and Gonthier, 2003; Patton et al., 2004; 2006). Therefore, nutrition management is an additional task for parents of children with Type 1 diabetes (Powers et al., 2002).

Before exploring how different parental styles affect child-feeding practices, thereby affecting his eating behavior and his illness management, a brief review of the different factors that determine the child's eating behavior is presented.

## **2.5 Determinants of Child Eating Behavior**

In the first years of life, the child is introduced to a variety of foods (Birch, 1996; 1998). However, by the age of five or six years, each child will have his own unique food acceptance pattern. The child is born equipped with genetic predispositions that shape his own food preferences (Birch, 1995; 1998; Benton, 2004). These include the innate preference to sweet and salt and rejection of bitter tastes, the tendency to decline novel foods, and the ability to learn to like and dislike foods in association with the physiological consequences that follow eating (Birch, 1996). Despite these predispositions that are thought to be fixed and unchangeable, many studies have demonstrated that child preferences for the majority of foods can be modified and shaped by repeated experiences and early learning (Birch, 1995; 1996; 1998; Birch and Fisher, 1998).

Birch (1979) found that sweetness and familiarity plays a prominent role in shaping FP of young children. As transition to adult diet starts, the child has to accept the new foods offered. This introduction to new foods constitutes a challenging issue since children are "neophobic" and do not readily accept new tastes (Birch, 1996; Benton, 2004). However, "neophobia" or the fear of the new (Benton, 2004) should never be understood as the child's dislike for this new food, but rather as a normal, adaptive response to novel foods that can be reduced with repeated food exposures. The physiological consequences following eating a novel food or what is known as

“learned safety” (Birch, 1996; Birch and Davison, 2001) are also efficient contributors to reduce neophobia and influence child’s food acceptance pattern. For example, when ingestion of new food results in illness, consequently aversion will occur and the food will be avoided; whereas, if a sense of pleasure and satisfaction is followed, then progressively this food will become a part of diet. Parents as well as peers play a crucial role in encouraging the tasting of new foods (Benton, 2004). During this transitory period to adult diet, parents should be responsible for offering their children adequate healthy foods and should leave the children the responsibility of choosing what, how much and whether to eat (Satter, 1999). Research has established that repeated yet not coercive exposures to new tastes can help overcome dislikes of foods and enhance their acceptance (Birch, 1996; Birch and Fisher, 1998; Benton, 2004). Moreover, children are biologically ready to learn to like and dislike foods in association with the social context in which foods are eaten. Very early in their lives, at about two years of age, children start to associate food to the social context in a way that foods offered in positive contexts are greatly preferred while those offered in negative ones are disliked. This reveals the importance of social factors in shaping children’s food preferences (Birch, 1996; Birch and Fisher, 1998). Peers also have a role to play in affecting adolescents’ eating behavior. Adolescents are largely influenced by what their peers eat (Birch, 1980; Patrick and Kicklas, 2005). Children learn about eating by observing others, as parents or peers (Patrick and Nicklas, 2005). In adolescence, the presence of adults or peers at mealtime was positively related to increased consumption of non-preferred vegetables and fruits (Birch, 1980). In a study performed by Feunekes et al. (1998), a significant resemblance of habitual fat and food intake occurred between parents and their adolescents. In contrast, friends had little influence on the fat intake of adolescents. Another study by Libberman et al. (2001) on adolescent girls’ eating behaviors found that peers were a strong contributor to eating behavior. Another influential factor is the emotional atmosphere during mealtime (Benton, 2004). A more positive atmosphere leads to greater food consumption. Although eating behavior is multi-causal, parents remain the strongest prominent factor in determining their children’s

preference for food. They provide the genes as well as the family environment where children's early eating experience occurs (Birch, 1996; 2001). This family eating environment includes parent's own eating behavior and their child-feeding practices which potentially influence the development of child eating behaviors (Birch, 1996; 2001).

## 2.6 Parents' Feeding Practices

Parents can influence their children's eating behaviors in many ways through food-related parenting practices. Feeding practices are defined by the attitudes and the behaviors of parents in the feeding context (Darling and Steinberg, 1993). Although the parent's primary aim is to control their children's eating behavior and to shape a healthy eating pattern, in certain cases, their practices play an influential role, directly or indirectly, in the child's relation with food. The feeding practices, as the parenting styles, are classified into four categories based on the same dimensions: *Demandingness* and *Responsiveness*. However, in this case, demandingness refers to the frequency of eating encouraged by parents while responsiveness refers to the manner by which parents encourage eating i.e. firmly or not.

While the parenting styles describe the parent-child relationship in general and in various contexts (Darling and Steinberg, 1993), the parents' feeding practices retain the same definition as the parenting style with only one exception which is feeding practices are domain specific (feeding domain). Table 1 presents the four different parents' feeding practices on the basis of demandingness and responsiveness in the domain of feeding.

	High Feeding Demandingness	Low Feeding Demandingness
High Feeding Responsiveness	Authoritative	Indulgent
Low Feeding Responsiveness	Authoritarian	Neglectful

Table 1: Classification of parents' feeding practices (Adapted from Hughes, 2005)



In a model (Figure 4), Birch (2001) suggested that parents' feeding practices are strongly determined by their own eating behaviors, by children's current weight status, and by parents' concern about future risk of developing overweight among their children. She added that parent's eating styles and their feeding practices shape children's dietary behaviors, such as food preferences and choices, and these children's eating patterns influence and are influenced by their own weight status.

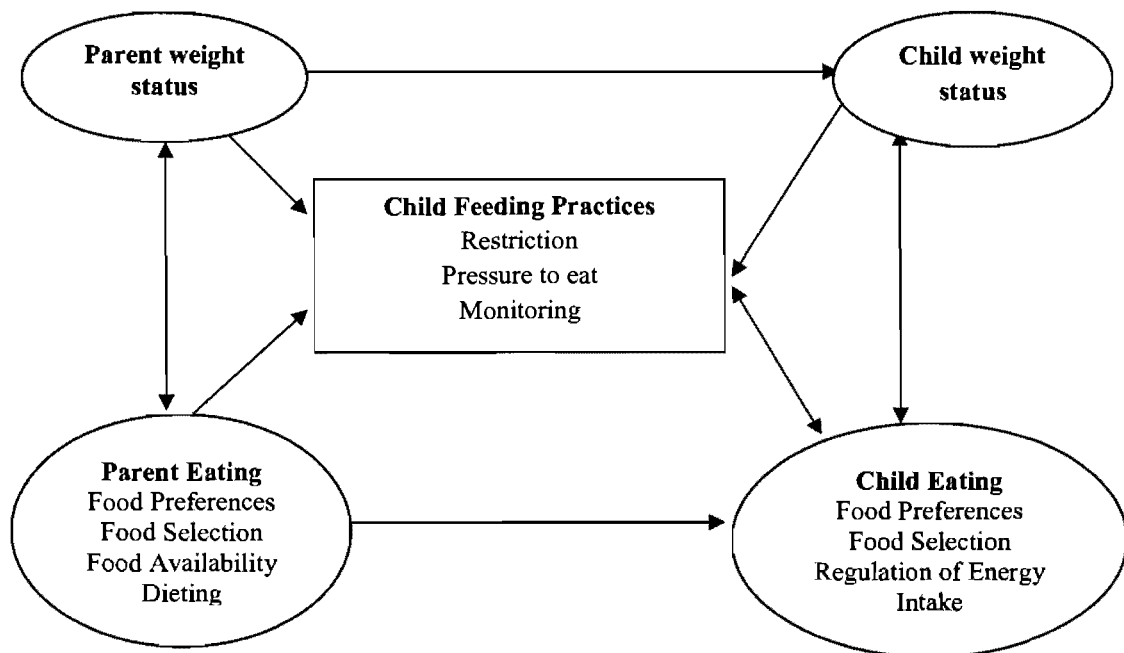


Figure 4: Familial Factors influencing Parents' Feeding Practices (adapted from Birch et al., 2001)

Using the Child Feeding Questionnaire, Birch et al. (2001) showed that parents control children's food intake by (1) restricting access to food, (2) pressuring to eat, and (3) monitoring strictly the child's behavior. Restriction is defined as the extent to which parent limit the child's access to *unhealthy* foods. Pressure to eat refers to the degree of pressure the parents exert on their child to eat more *healthy* foods (Birch, 1991; Birch et al., 2001; Francis et al., 2001). Restricting access to food differs from pressure to eat by being limited to certain palatable food while pressing to eat is limited to mealtime (Francis et al., 2001).

### **Pressure to eat**

Pressuring a child to eat *healthy* foods may influence children's dietary patterns and weight status throughout the life span (Birch and Davison, 2001; Birch et al., 2001; Faith et al., 2004). A child who is forced to clean his plate after he is full will learn to ignore his internal feelings of satiety and to focus on the quantity of food in his plate to stop eating (Birch, 1987). Moreover, if this child feels hungry and has been told to wait until mealtime arrives, he will learn to relate the initiation of eating with the arrival of mealtime, not with his internal clues of hunger (Birch and Davison, 2001). This strategy in controlling child's food behavior strongly disrupts his innate ability to recognize and respond to his internal clues and as a result will lead to maladaptation of dietary energy intake (Birch and Fisher, 2000; Orrell-Valente et al., 2007). Bourcier et al. (2003), in a study on children aged between five to twelve years, revealed that pressure exerted to consume fruits and vegetables reduced their consumption. In their study, Spruijt-Meta et al. (2002) found that maternal pressure to eat and concern about child weight explained 15% of the variance in total fat mass.

### **Restriction**

In an attempt to foster the development of healthy diet, parents tend to limit the access of their children to *unhealthy* foods or the quantity consumed thinking of this tactic as an effective means. Restricting access to particular foods increases rather than decreases preference to this food (Benton, 2004). More precisely, results from several studies demonstrated that restricting the access to palatable unhealthy foods will heighten children's preference and desire to that food. Research also revealed that children's intake of such food increases in the absence of their parents even in the absence of hunger. As a consequence, the composition and the amount of their dietary intake will be modified showing a high risk of overweight (Constanzo and Woody, 1985; Fisher and Birch, 1999; Francis et al., 2001; Orrell-Valente et al., 2006). In a study by Spruijt-Meta et al. (2002), restrictive feeding practices, combined with high concerns about the child's weight, were associated with higher energy intake and higher body mass index. Another study by Rhee et al. (2006)

demonstrated that authoritarian feeding style, characterized by excessive restriction and strict monitoring, was associated with highest risk of overweight among children and adolescents. The findings of a study performed by Birch et al. (2003) provided evidence that restrictive feeding practices promote overeating in the presence of palatable foods among young girls between five to nine years of age, particularly those girls who reported higher levels of maternal restriction (Birch et al., 2003).

Consistent with Birch, a mother who strictly monitors the child's food intake devalues her child ability to self-regulate energy intake. The same study demonstrated that children with larger body fat stores were less able to regulate energy intake correctly (Johnson and Birch, 1994). Mothers are more restrictive when they themselves have increased weight and eating disorders, when they are concerned about their children's weight especially if the child is perceived as overweight or at risk of being so (Francis et al., 2001; Cooper et al., 2004).

In addition to these two principal factors, pressure to eat and restriction, another factor was identified as strong modifier of children's eating behaviors which is the utilization of rewards for completing an action that is judged well by parents such as the consumption of a certain undesired food (Benton, 2004). Promising a child a certain reward (ex. have some ice cream for eating his peas) decreases the liking of that food (ex. peas). After certain repeated rewards, the child consumption to this food will diminish (Benton, 2004). This can be explained by the *theory of over justification* which states that "offering a reward for an action devalues it for a child"; he will start to think of it as "if I am rewarded for eating peas, I must not like them very much" (Wardle et al., 2003)

### **2.6.1 Parents' Feeding Practices and Chronic Disease**

Between fifteen and eighteen percent of all youths in North America have a chronic illness or a special health condition (Adolescents Health Committee, 2006). Chronic illness is a condition that changes the whole life style of the patient as well as his parents (Hauser et al., 1993). Thus, raising a child with a chronic illness represents a

stressful event for the parents due to the large number of tasks they have to face to adapt to this new condition (Canam, 1993).

Normal parenting issues in adolescence are increased by chronic disease (Yeo and Sawyer, 2005). Once diagnosed with a chronic illness, an adolescent has to live a life completely different from his healthy peers (Sawyer et al., 2003). His illness will accompany him for the rest of his life and he will have to adhere perfectly to the disease regimen to avoid serious complications (Sawyer et al., 2003). As adolescents mature, they seek autonomy and start to depend less on their parents in most of life aspects (Power et al., 2003) even in self-care (Kyngas et al., 1998). They want to be self-responsible even in the management of their illness.

This struggle for autonomy represents a distressing event for parents of adolescents, particularly those of chronically-ill adolescents. Research has shown that parents of an ill child are more directive, protective, intrusive, and controlling. Although the parents' intentions are to protect their children (Power et al., 2003) and to get them to adhere to treatment (Yeo and Sawyer, 2005), they are unintentionally interfering in the development of their children's social skills (Powers et al., 2003). In this case, parents have to balance between their role as supervisors and their children's struggle to gain independence in the health management (Kyngas et al., 1998; Yeo and Sawyer, 2005).

Having a child with chronic condition is a challenging responsibility for the family, particularly during mealtime (Speith et al., 2001). Getting the child to eat healthily is another challenging task for parents of a chronically-ill child (Janicke et al., 2005). For example, for a child with Cystic Fibrosis, it is important to consume hundred twenty to one hundred fifty percent of the recommended daily allowance of energy for healthy individuals to avoid possible pulmonary consequences, a primary cause of death. In order to reach the one hundred twenty percent recommended daily allowance, parents should get children to consume more calories (Janicke et al., 2005). Research has found that family interactions, during mealtime, are compromised (Janicke et al., 2005) and is associated with conflict and tension (Speith

et al., 2001). Parents not only have to prepare adequate amount of food for their children, they also have to ensure that they meet their special dietary requirements, adding new tasks to parents that may negatively impact the whole family context (Speith et al., 2001).

Power et al. (2003) demonstrated that mothers of adolescents with Rheumatoid Arthritis are at high risk of being pushier, interfering and over controlling. Their amplified anxiety has led to excessive monitoring and control, obstructing the children's autonomy and fostering dependency (Power et al., 2003). Consistent with Costanzo and Woody (1985), Birch et al. (2001), Faith et al. (2004), Patrick et al. (2005), and Moens et al. (2007) provided evidence that parents who exercise restrictive styles on their children's energy intake increase their preferences for restricted foods and put their children, although unintentionally, at high risk of obesity.

Another study conducted by O'Neill et al. (2005), on adolescents with Down Syndrome, revealed that these adolescents have higher body mass indices and this raise was attributed to their parents' feeding styles and practices. The coercive feeding practices of parents made the children ignore their internal feelings of satiety and hunger, thereby worsening obesity-proneness (O'Neill et al., 2005).

Bisset's work (2001), on adolescents with Silver Russell Syndrome, documented that these adolescents had more feeding problems than their healthy peers based on the excessive concern of parents about their children's nutritional status. Their anxiety turned them to use force-feeding practices rendering mealtime and food aversive to their children (Bisset et al., 2001).

### **2.6.2 Parents' Feeding Practices and Type 1 Diabetes**

Although diabetes management is multi-factorial, one of its most demanding dimensions is diet (Patton et al., 2006) which adds a new task to parents of children with Type 1 Diabetes (Patton et al., 2004; 2007). The goal behind nutrition management is to match caloric intake to insulin needs to keep blood sugar level

within the normal range (Patton et al., 2004; 2006; 2007). This means that parents of diabetic children should face two additional responsibilities in the sector of nutrition management. They have to prepare and offer suitable, sufficient, and healthy amounts of foods and snacks to their diabetic youngsters plus supervising or controlling them during mealtime and snacks to ensure that they take the recommended quantity of food. They have to be sure that their children adhere perfectly to the diabetes dietary regimen to avoid serious complications (Patton et al., 2004). For the diabetic children, diabetes dietary regimen compliance is a critical aspect that stops or slows the incidence of undesired health consequences.

For parents, mealtime is a "challenging period" (Patton et al., 2004), full of stress, tension, and behavioral problems (Powers et al., 2002; Patton et al., 2004; 2006). Numerous studies by Patton et al. (2002; 2004; 2007) revealed that parents of children with Type 1 diabetes face more problematic eating behaviors during mealtime than parents with healthy children. They meant by problematic eating behaviors that children leave the table during mealtime, refuse parental commands to eat, complain about foods (Patton et al., 2004), while Powers meant that the children "take longer time (more than twenty minutes) to finish their meal, would rather drink than eat..."(Powers et al., 2002:316). Patton et al. (2006) also showed that these problems during mealtime were strongly related to the children's dietary adherence and their blood sugar levels. Moreover, it was demonstrated that coercive parenting largely affects the children's dietary behaviors, their adherence to diabetes dietary regimen, and their glycemic control. By *coercive parenting*, Patton et al. meant that parents use strategies as "coaxing, interrupted commands, physical prompts..."(Patton et al., 2006:1005).

Overall, mealtime, for parents of diabetic children, remains a great concern for most of their lives. Parents are concerned about managing their children's mealtime to ensure better dietary regimen adherence aiming at avoiding any possible complication (Patton et al., 2006; 2007; Powers et al., 2002). Their concern would take them to prepare meals other than those being served. For short time, this action

of preparing new meals could have a certain positive effect; however, for long term, it negatively affects the children's eating behavior, their adherence to diabetes diet, and will render mealtime longer (Patton et al., 2006), thereby exacerbating the relationship between parents and their sick children during mealtime. For example, Patton et al. (2007) found that diabetic children consume 80% and 78% of their recommended carbohydrate and energy intake respectively. This shows how much disruptive children's mealtime are, and reflects their need for a balanced diet to meet the diabetic regimen recommendations and to be far from serious health outcomes and morbidity (Patton et al., 2004). During adolescence, the parent's great anxiety could be the result of observing their adolescent less adherent to diabetes dietary recommendations since adolescents adhere less to their diet than do school-age children (Patton et al., 2007).

### **3. RESEARCH PROBLEM AND OBJECTIVES OF RESEARCH**

The research problem as well as the objectives will be presented.

#### **3.1 Research Problem**

Adolescence is a critical stage in everyone's life (Lehalle, 1985; Fleming et al., 2002; Geoffroy and Gonthier, 2003). It is a transitory period into a new step of life during which adolescents start to adopt numerous new physical, social, and psychological roles in order to reach maturity (Lehalle, 1985; Claes, 2003; Geoffroy and Gonthier, 2003). Diabetes is one of the most challenging chronic diseases that requires life-long self-care and invades various aspects of daily life such as sports, eating, and school rendering the adolescent less independent (Kyngas et al., 1998; Geoffroy and Gonthier, 2003). Thus, no wonder that adolescence, combined with diabetes, constitutes a period full of tension, stress, conflict, and discipline for the diabetic adolescent and for everyone concerned, notably his parents. Adolescence, particularly mid-adolescence (Palmer et al., 2004), is a challenging time for Type 1 diabetes management (Kyngas et al., 1998; Geoffroy and Gonthier, 2003; Palmer et al., 2004). During this developmental period, adolescents are less compliant to diabetes regimen, resulting in a severe deterioration in metabolic control (Fleming et al., 2002; Palmer et al., 2004). The reasons behind this non-compliance are diverse including the normal developmental challenges of any adolescent's life. Another reason, an essential one, is the transfer of diabetes responsibility from parents to adolescents, which is itself a complex duty that hinders the adolescent's desired autonomy. As mentioned before, diabetes affects not only the adolescent, but also his family, particularly his parents (Kyngas et al., 1998; Geoffroy and Gonthier, 2003). Actually, a successful diabetes regimen adherence is a reflection of a positive parent-adolescent relationship that is a relation that is not over protective and not over-negligent. Using these two extremes in raising diabetic adolescents results in parent-adolescent conflict, leading to a poor diabetes management (Pendley et al., 2002) and metabolic control (Hanna et al., 2005).



Parents constitute a crucial element in the direct environment of the child and influence the child in different fields. The literature suggested that parental style strongly affects the child's diabetes management. Child-centered (responsive) parents are those who focus on their children's needs, encourage them for self-injecting and monitoring blood sugar, provide support, and foster their children's autonomy in regard to their treatment (Davis et al., 2001; Harris et al., 2004). Even if they place demands, those parents take into consideration the child's level of maturity and performance. They are motivating and accepting, but also they set discipline for self-care. On the contrary, parents that are parent-centered (demanding) exert high demands, always expect more of their children, and are never satisfied with the effort exerted by them. These parents are firm, strict, and over-controlling and demanding.

The style practiced by parents potently affects adolescents' diabetes management and also affects their autonomy in controlling diabetes, including self-injecting and checking glucose level. The literature revealed that parental warmth has been associated with improved adherence to diabetes management. Adolescents who live a cohesive relationship with their parents are more likely capable of managing diabetes, and they comply more. Therefore, they have better glycemic results and suffer less from serious consequences. However, other diabetic adolescents whose parents are strict suffer from increased conflict which, in turn, affects their diabetes compliance and thus their glycemic control (Davis et al., 2001). Finally, as nutrition represents a cornerstone in the management of diabetes, parents' feeding practices, namely the parents' attitudes and behaviors in the feeding context, constituted a great concern in modern research (Patton et al., 2004) affecting the development of the child's own eating behavior (Birch, 1996; 2001).

This study is of particular interest as it is the first study to examine the parenting styles privileged by parents as well as their feeding and treatment practices in Quebec, and more precisely with parents of diabetic adolescents. More interestingly, the strength of this study lays in recruiting and interviewing not only the mothers but also the fathers who are excluded in most studies. Hopefully, the collected data will

help us explore the different parenting styles as well as the parenting practices exercised by the parents of diabetic adolescents.

### **3.2 Objectives of Research**

The principal objectives of this study are:

1. To explore the parenting styles privileged by parents of diabetic adolescents between 10 and 15 years old
2. To explore the parents' feeding and treatment practices as reported by parents
3. To examine the relation between parents' feeding and treatment practices and parents' perception of the adolescent's capacity regarding feeding and diabetes management (i.e. capability of adolescent to perform basic things as calculating carbohydrates and controlling their blood sugar respectively)

The secondary objectives of this study comprise:

4. To explore whether the styles and practices of parents are different between a mother and a father
5. To explore whether the styles and practices of parents are different between diabetic adolescent boys and girls

## **4. METHODOLOGY**

The methodological aspects of this research will be presented including the selection criteria and the recruitment of subjects as well as the development, and pre-test of the interview grid for data collection. The method of data analysis will also be presented. Finally, the ethic aspect of the research will be provided. This study constitutes a part of a larger project aimed at exploring the motivations and the behaviors of adolescents regarding nutrition management. It is concerned with the barriers to dietary regimen adherence, the perception of the influence of peers on adolescents' behaviors, the adolescents' perception of nutritionists, their interest in diet and their food motivation. Moreover, the larger project seeks to investigate whether parents' attitudes or preoccupations regarding their adolescents' eating behaviors change according to adolescent's gender. This study was financed by the Quebec Diabetic Association.

### **4.1 Criteria of selection of participants**

For parents of diabetic adolescents, the original criteria of selection were to obtain thirty two subjects, sixteen mothers and sixteen fathers. The parents were to be born in Quebec and should have had at least one diabetic adolescent between twelve and sixteen years of age. Due to recruiting difficulties, the number of parents was reduced and so was the age of the young diabetics. The inclusion criteria were revised to include children ranging between ten and sixteen years of age. Moreover, the ethnicity origin was no more retained as a criterion of selection. The participation of both parents, i.e. the mother and the father of the same diabetic adolescent, was not considered a criterion of selection and not even a criterion of exclusion.

### **4.2 Recruitment of Subjects**

The recruitment of parents was carried out with the collaboration of the nutritionists and the pediatricians at the diabetes clinic at Sainte Justine Hospital, a pediatric hospital located in Montreal. First, the principal researcher met the healthcare team at the diabetes clinic at Sainte Justine Hospital. Later, the researcher presented the

project to the multidisciplinary team of the same clinic. Parents, whose young diabetics, either of Type 1 or Type 2, were being examined at Sainte Justine Hospital, were allowed to participate also. A letter was given to mothers or fathers of diabetic adolescents by the clinicians of Sainte Justine Hospital explaining the objectives of the project and asking their participation in interviews that would last for about forty five to sixty minutes. The letter was accompanied by a consent form and participant declaration form that should be signed and mailed to the principal researcher. Then, a research assistant, a dietitian, contacted the parents that agreed to participate and decided with them a telephone interview. These interviews were performed at a time chosen by the participants themselves (Appendix 4).

#### **4.3 Data collection**

For the parents of diabetic adolescents, a questionnaire was developed for individual telephone semi-structured interviews. Questions were inspired from the literature. The pre-test of this questionnaire was carried out with the first interview. No questionnaire adjustment was needed. The data of this interview has therefore been integrated to the whole data. The parts of the questionnaire (Appendix 1), related to the objectives of this project, are presented below.

Q1: Family profile (ex. their marital status)

- *Does your adolescent live with his (her) mother and father?*

Q2: The parents' perception of their adolescents' autonomy to recognize and control diabetes symptoms:

- *Generally how do you see his (her) capacity in identifying the symptoms of diabetes?*
- *Generally how do you see his (her) capacity in controlling his (her) diabetes?*

Q3: The parents' perception of their adolescents' capacity to prepare food and to be more autonomous in cooking:

- *Who prepares the meals at home? Is your son (daughter) capable of cooking some food by himself (herself)?*
- *Do you think that your adolescent would be interested in learning and becoming more autonomous in cooking, for example by taking a cooking course?*

Q4: The parents' perception of their adolescents' autonomy in diabetes diet management:

- *Does your adolescent enjoy eating with his (her) friends? At their place? At your place? At restaurants?*
- *What happens with his food plan on such occasions?*

Q5: The overall parenting style privileged by the parents as well as their parenting practices in regard to diet management and diabetes monitoring. This aspect was analyzed from the following parts of the questionnaire:

- *Imagine that you are invited to participate in a television series where you will meet somebody of the age of your child that has diabetes also, and we would like to know about his (her) everyday life, when he (she) eats, goes to school, participates in sports, with his (her) family, his (her) friends, when he (she) takes insulin, measures his (her) glycemia, etc? Suppose that you can influence the scenario, what message would you like to transmit to the viewers. Take some time to think. What message wouldn't you want to transmit? How would you like the relationship to be with his (her) mother (his father), his (her) friends, his (her) brothers and sisters?*

- *Suppose that an adolescent of the age of your son (daughter) was newly diagnosed diabetic. His (her) mother met you and asked you how can she help his (her) young diabetic, what would you answer?*
- *If his father came to see you and asked you for some advice to help his (her) young diabetic, what will be your advice?*
- *Can you tell me about the most beautiful moment that you remember in relation with the illness of your son (daughter)?*

Individual telephone semi-structured interviews were carried out with twenty nine parents, sixteen mothers (eight having a diabetic girl and eight having a diabetic boy) and thirteen fathers (five having a diabetic girl and eight having a diabetic boy). The diabetic adolescents' age ranged between eleven and fifteen years. Two parents, originated from Porto Rico, and three couples participated in the study. All interviews were conducted by the same nutritionist, recorded and re-transcribed. Table 2 below summarizes the five main and secondary objectives of this study and reveals the parts of the questionnaire addressing the objectives.

Objectives	Questions addressing the objectives
1	Q5 (scenario, message, transmit, advice, beautiful moment)
2	Q2, Q3, Q4, Q5 (autonomy, symptoms, diet, monitoring, scenario, message, transmit, advice, beautiful moment)
3	Q2, Q3, Q4 (autonomy, diet, diabetes monitoring)
4	Q5(scenario, message, advice, girl or boy, mother or father)
5	Q5 (scenario, message, transmit, advice, beautiful moment)

Table 2: The parts of the questionnaire addressing the study objectives

#### **4.4 Data Analysis**

Data from interview transcripts were analyzed by Semato software (SEMATO, 2007), which is a new software for qualitative analysis that was developed at the Université du Québec à Montréal. Semato is a software for semantic analysis of French and English documents. It facilitates largely the categorization of texts. It is designed for the analysis of focus groups, open questions, directed, semi-directed or free interviews, literal or socio-political corpus, as well as articles in newspapers. Semato allows multiple analyses between external variables (ex. gender, age) and internal elements (themes from phrases and texts) in an automated manner.

Concerning the data obtained from the parents of diabetic adolescents, a qualitative analysis was executed for the twenty nine interviews. First, re-transcribed data were transferred to the server of Semato. Second, different themes that address the objectives of our study were selected. More precisely, based on the verbatim, Semato automatically proposes diverse themes that the analyst can choose, delete, or modify. In this study, the themes proposed by Semato were not retained while other specific themes, that direct the objectives of our study, were selected. These themes are: parenting style, demandingness, responsiveness, nutrition, treatment, perceived autonomy of adolescent regarding nutrition, and perceived autonomy of adolescent regarding diabetes monitoring.

Semato, automatically, divides the text of each interview into paragraphs or sentences to be coded by the analyst based on the themes selected. Each interview was coded separately with the themes selected. For example, for a text or paragraph that shows a responsive parent, the themes “parenting style” and “responsiveness” were used. Coding of interviews was repeated twice by the master’s candidate at a time interval of two months. The coding was extensively discussed with a second analyst, the master’s candidate director.

After all interviews were coded, a cross table was performed for each interview with the themes stated above in an attempt to determine the frequency of each theme in

each interview. Second, a co-occurrence table, with the frequency of occurrence of every two themes, was formed (e.g. the themes control and nutrition).

Then, a request of analysis of similarity networks on the body of the themes defining the two dimensions, demandingness and responsiveness, was performed. This method of analysis allows us to see whether there were similar groups of interviewed persons that tend to form resemblance islets within the body. Three similarity networks were designed, one for the whole group of parents of the diabetic adolescents, another one for the mothers of the diabetic adolescents, and finally, one for the fathers of the diabetic teens. For this analysis, new themes were added to the previously mentioned ones. These themes, extracted from the verbatim, were selected from those automatically provided by Semato. Selection of these themes was based on the two dimensions, demandingness and responsiveness, upon which parents' profiles were classified. The themes associated to demandingness were: *bully, count, prevent, implicate, oblige, plan, deprive and control*. The themes associated to responsiveness were: *help, dramatize, guide, release, exceed, load, surround, manage, guide, remind, sensitize and feel*.

On the basis of the results obtained, a frequency table was developed showing the privileged parental style of every parent, parent's practices regarding diet and diabetes monitoring, the degree of autonomy of adolescent concerning diet and diabetes monitoring. The privileged parental style as well as parenting practices were categorized as either demanding (high control) i.e. those parents who are strictly directive and less responsive to their children (authoritarian), or responsive (high warmth) which refers to parents that are extremely responsive to their children's needs, or even *both* (authoritative), which refers to parents that show control but they are at the same loving and compassionate. As for the autonomy of the adolescents regarding diet and diabetes monitoring, it was classified according to the following manner: *Yes*, for adolescents who were perceived by their parents as being autonomous, *+/-*, for those adolescents who were capable of managing their diet by themselves, but they perform much better in the presence of their parents, and last,



*No*, for those young diabetics who were perceived by their parents as being completely dependent on their parents.

French was the language of data collection, transcription and analysis. Data reported in this document were translated by the master's candidate and the translation was extensively reviewed and accepted by the master's candidate director, the project leader of this study.

#### **4.4 Ethics**

This project obtained the approval from two ethics committees: The Faculty of Medicine Ethic and Research Committee at the Université de Montreal (Appendix 2), and the Sainte Justine Hospital Ethic Committee (Appendix 3). Informed consent (Appendix 4) was obtained from each parent.

## 5. FIRST ARTICLE

**Title:** Child-Feeding Practices reported by parents of diabetic adolescents

**Authors:** May Slim, Marie Marquis, PhD

**This article was submitted to the Journal of Pediatric Diabetes on November 14, 2007.**

**Address:**

May Slim

Faculté de médecine

Département de Nutrition

Université de Montréal

C.P 6128 succursale Centre-ville,

Montréal, QC, H3C 3J7

Tel: [information retirée / information withdrawn]

Fax: [information retirée /  
information withdrawn]

E-mail: [information retirée / information withdrawn]

Marie Marquis

Faculté de Médecine

Département de nutrition

Université de Montréal

C.P 6128 succursale Centre-ville,

Montréal, QC, H3C 3J7

Tel : [information retirée / information withdrawn]

Fax: [information retirée /  
information withdrawn]

Email: [information retirée / information withdrawn]

**Running Title Page:** diabetes, teen, parent, practices, diet

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**ABSTRACT:**

**Objective:** Parents' feeding practices are classified on the basis of two dimensions, responsiveness and warmth. We explored the parents' child feeding practices in families with diabetic adolescents and investigated the relation between these practices and the adolescents' autonomy toward their diet, as perceived by parents. Moreover, we surveyed whether these feeding practices change between a mother and a father or between diabetic adolescent genders.

**Methods:** Twenty-nine parents of diabetic adolescents were recruited at the diabetes clinic of Sainte Justine Hospital. Semi-structured telephone interviews were executed by the nutritionists and the pediatricians of this clinic.

**Results:** Parents were both responsive and demanding in their feeding practices. However, different practices were used. Indeed, mothers exerted more control as compared to fathers. Demanding actions were represented by restricting access to certain foods or setting quantities, whereas responsive actions were characterized by discussing adolescents' food preferences, being comprehensive especially on occasions, and encouraging autonomy. Fathers practiced more controlling actions with their boys than with their girls, whereas mothers' practices weren't considerably different. Most diabetic adolescents were perceived capable of managing their diet.

**Conclusions:** Different feeding practices were exercised by the parents who affected the adolescents' perceived autonomy in managing their diet. Further research is proposed to examine different parental factors that may influence the adolescents' autonomy in nutrition management. Future work is advised to explore the professionals' styles and practices as well as those of the nutritionists who accompany the diabetic adolescent along his illness.

**Key words:** parents, feeding practices, diabetes, adolescents

## Introduction

Among the multiple determinants of children's eating behaviors, parents remain the strongest prominent factor. They provide the genes as well as the family environment where children's early eating experience occurs (1, 2). This family eating environment includes parent's own eating behavior and their child-feeding practices which potently influence the development of a child's eating behavior (1, 2).

As a definition, parents' child feeding practices refer to the attitude and behaviors of parents towards their children in the feeding context. These practices are determined by a combination of the two principal dimensions of demandingness (or control) and responsiveness (or warmth). More precisely, in the feeding context, responsiveness refers to the manner the parents encourage eating i.e. responsively or not, while demandingness refers to the frequency of eating encouraged by parents (3). More precisely, parents usually control children's eating behavior to encourage them to adopt an eating pattern that is evaluated beneficial by parents. For example, as illustrated in the Child Feeding Questionnaire (4), parents tend to control children's eating by either restricting their access to food, pressuring them to eat, monitoring their child's eating behavior, as well as using rewards. Restriction is defined as the extent to which parent limit the child's access to *unhealthy* foods, usually palatable foods. Pressure to eat refers to the degree of pressure that parents exert on their child to eat more *healthy* foods usually at mealtime. Monitoring refers the extent to which parent keep on tracking their children's eating (3, 4, 5).

Feeding practices have been categorized into authoritarian, authoritative, and permissive categories. Excessive restriction and strict monitoring characterize authoritarian parents. Their practices are represented by restricting access to certain foods mainly palatable foods (6) and pressuring them to eat other foods (3, 4), and determining meal size (7). Authoritarian parents usually try to modulate their children's eating pattern by being less reactive to their needs (8). Surprisingly, authoritarian feeding style was associated with highest risk of overweight among children and adolescents (9). Spruijt-Meta et al. (10) suggested that the pressure to

eat exercised by mothers, correlated with their concern about their children weight status, accounted for a fifteen percent variation in child adiposity. Indeed, a mother who strictly monitors her child's food intake may contribute to the inability of her child to self-regulate energy intake (11). For example, a child who is forced to clean his plate while being not hungry will learn to ignore his internal feelings of satiety and will rather focus on the quantity of food in his plate to decide to stop eating (12). Research involving authoritative and permissive feeding practices has been limited (3). Authoritative parents are both demanding and responsive; their feeding practices include discussion, negotiations, reasoning and praising the child (3). Authoritative parents offer their children the foods and leave their children choose what and whether they want to eat (8, 13). Authoritative feeding practices have been associated with increased consumption of dairy, fruits, and vegetables (8). By playing the role of models, parents encourage their children to choose healthier foods and help establish better dietary habits (14). Permissive practices characterized by parents who are somewhat neglectful have been described by the lack of parental control over the child's eating and letting the child eat whatever he/she wants (3, 8).

Parent's feeding practices are also influenced by the impact of different cultures (3, 7, 8) although this factor has been denied in most studies on feeding practices (3). Patrick et al. (8) showed that Latin-American parents strongly utilize the method of bribes in bringing their children to eat a certain food whereas the African-American parents believe that commands, actions, and rationales are an effective strategy to get their child to eat. Hughes et al. (3) reported that Hispanics are more likely to be indulgent while African-American parents were typically more uninvolved.

Finally, parents' feeding practices constitute a matter of interest in the case of child's illness such as diabetes. For parents, managing diabetes at mealtime constitutes the most complicating part of diabetes care due to the complexity of its dietary regimen and the difficulty in bringing children to adhere to this regimen (15). Two studies by Patton et al. (16, 17) revealed that parents of children with Type 1 diabetes face more problematic behaviors during mealtime than parents with healthy children. With problematic eating behaviors, Patton refers to leaving the table during mealtime,

refusing parental commands to eat, and complaining about foods (15), while Powers meant that children take longer time to finish their meal, and they would rather drink than eat (18). Parental responses to these behaviors are worth being studied since Patton also showed that these problems at mealtime were strongly related to the children's dietary adherence and their blood sugar levels (15). Moreover, it was demonstrated that coercive parenting largely affects the diabetic children's dietary behaviors, their regimen adherence, and thus their glycemic control. Coercive parents of diabetic children may exercise strict actions as coaxing, and irrational commands. These strategies have been showed fruitless as they do not clearly provide children with their parents' message and thus they do not allow them to conform to their parents' expectations (15).

The principal objectives of the study reported herein were to explore the parents' child feeding practices in families with diabetic adolescents and the relation between these practices and the adolescents' autonomy toward their diet, as perceived by parents. The secondary objectives of this study were to explore whether these feeding practices change between a mother and a father and whether these practices change if the diabetic adolescent is a girl or a boy.

## Methods

This study constitutes a part of a larger project aiming at exploring the motivations and the behaviors of adolescents regarding nutrition management namely barriers to dietary regimen adherence, perception of peers' impact on adolescents' behaviors, adolescents' perception of nutritionists, and their interest in diet.

Parents of adolescents with diabetes were recruited at the diabetes clinic of Sainte Justine Hospital, a pediatric hospital located in Montreal. The recruitment of subjects was carried out with the collaboration of the nutritionists and the pediatrician of the clinic.

For the parents of diabetic adolescents, a questionnaire was developed for individual telephone semi-structured interviews and questions were inspired from the literature. The pre-test of this questionnaire was carried out with the first interview. No questionnaire adjustment was needed. Questions addressing the objectives of this study included:

### Family profile (e.g. the marital status)

*Does your adolescent live with his (her) mother and father?*

### Parents' practices regarding diet management.

*Imagine yourself participating in a television series where you will meet somebody of the age of your adolescent that has diabetes also: Suppose that you can influence the scenario, what message would you like to transmit? What message wouldn't you want to transmit? How would you like the relation with his (her) mother (his father), his (her) friends, his (her) brothers and sisters be? Suppose that an adolescent of the age of your son (daughter) was newly diagnosed with diabetes. His (her) mother met you and asked your help, what will you answer her? What if the father of the adolescent asked, would your answer change? What was the most beautiful moment that you remember in relation with the illness of your adolescent?*

### Parents' perception of their adolescents' autonomy toward their diet

*Does your young adolescent like to eat with his (her) friends? At their places? At your place? At restaurants? What happens with his (her) food plan in such occasions?*

*Who prepares the meals at your place? Is your son (daughter) capable of cooking some foods by himself (herself)? Do you think that your adolescent is interested in becoming more autonomous in cooking, for example by taking a cooking course?*

This study was approved by two ethics committees: The Faculty of Medicine Ethics and Research Committee at the Université de Montréal, and the Sainte Justine Hospital Ethics Committee. Informed consent was obtained from each parent. This study was financed by the Québec Diabetic Association

### **Data Analysis**

Data from interview transcripts were analyzed by Semato software (19), a qualitative analysis software developed at the Université du Québec à Montréal. Semato is a software for semantic analysis of French and English documents. It is designed for the analysis of focus groups, open questions, directed, semi-directed or free interviews, literal or socio-political corpus, as well as articles in newspapers. Semato automatically authorizes multiple analyses between external variables (ex. gender, age) and internal elements (themes from phrases and texts).

First, re-transcribed data were transferred to the server of Semato. Next, different themes that address the objectives of our study were selected. These themes are: parenting style, control, warmth, nutrition, treatment, and perceived autonomy of adolescents regarding nutrition. Semato automatically divided the text of each interview into paragraphs or sentences that were coded by the first author based on the themes selected. Each interview was coded separately with the themes selected. Coding of interviews was repeated twice by the first author. The coding was extensively discussed with a second analyst, the second author.

After all interviews were coded, a cross table was performed for each interview with the themes stated above in an attempt to determine the frequency of each theme in each interview. A further step included a co-occurrence table where the frequency of occurrence of every two themes occurred (e.g. control-nutrition). French was the language of data collection, transcription, and analysis. The first author translated data reported in this document and the translation was reviewed and accepted by the second author.



## **Results**

Below are the results of the interviews performed with the parents of diabetic adolescents. Initially, the profile of participants or parents will be presented. Next, the parents' feeding practices regarding the adolescent's diet will be reported. The adolescent's autonomy toward their diet as perceived by their parents' diet will be presented. Finally, the relation between parents' feeding practices and their child perceived autonomy will be discussed.

### **Profile of participants**

Twenty-nine parents, sixteen mothers and thirteen fathers, were interviewed. Specifically, mothers of the diabetic adolescents were divided equally among the gender of the children i.e. eight were mothers of diabetic girls and eight were mothers of diabetic boys, whereas the fathers were grouped into five fathers of diabetic girls and eight fathers of diabetic boys. One father of this study had a diabetic girl and a diabetic boy. Three couples, i.e. mother and father of the same diabetic adolescent, participated in the study. The majority of parents (n= 27) were born in Quebec while only one couple of parents was from Porto Rico.

The total number of adolescent girls was thirteen while that of adolescent boys was sixteen, so this rendered the total of diabetic adolescents to thirty. Twenty-eight diabetic adolescents were of Type 1 diabetes while only two had Type 2 diabetes.

The average age of the adolescent's girls was twelve years and six months ( $\pm 9$  months) and their average age at diagnosis was eight years ( $\pm 2$  years). Fifty percent of the diabetic girls lived with their biological parents, 25% lived exclusively with their mother and 25% were raised separately, evenly by each parent. The average age of the adolescent boys was thirteen years and four months ( $\pm 10$  months) and the average age at diagnosis was nine years ( $\pm 1$  year and 10 months). Eighty five percent of diabetic boys lived with their biological parents while the rest were raised separately, evenly by each parent.

### **Parents' feeding practices**

Table 1 below shows parents' practices regarding their adolescent's diet. Overall, parents were both warm and controlling regarding their adolescents' diet. However,

different practices seem to be used by mothers and fathers. Indeed, mothers exerted more control as compared to the fathers of the adolescents. More precisely, seven mothers (7/15) only expressed controlling practices when talking about nutrition, five (5/15) appeared to be more responsive in reporting only warmth practices and three (3/15) exerted both control and warmth. One mother reported no information about her feeding practices.

	Mothers (n=15)			Fathers (n= 11)		
	Control	Warmth	Control and Warmth	Control	Warmth	Control and Warmth
Daughters	4	4	0	0	4	0
Sons	3	1	3	1	4	2

Table 1: Parents' practices regarding nutrition of their diabetic adolescents

Mothers of the diabetic teens, who were more controlling toward diet, restricted their adolescents from eating certain kinds of food and set quantities to be respected. This was illustrated below where a mother would tell her daughter:

*"I know it is hard. Look, you should eat this or that. This is not good for your diabetes"* (Case E-02, mother of a 13-year old diabetic girl, diagnosed at age 8)

Moreover, some of these mothers were forceful in making their teens adhere to a diet already planned by them. Their firm discipline is illustrated below:

*"I do not allow him to eat something new; he must eat things that we know, that we count"* (Case E-12, mother of a 14-year old diabetic boy, diagnosed at age 12).

*"We should be conscious of what happens, we should count what he eats"* (Case E-03, mother of 12-year old diabetic boy, diagnosed at age 9.5)

However, among mothers who would express high level of warmth concerning diet, some will allow them to choose the food they like based on their preferences.

*"She tells me what to buy, what she likes to eat, it happens that I buy what she tells me to do" "sure, she has her preferences"*(Case E-21, mother of a 14-year old diabetic girl, diagnosed at age 11.5).

However, for others, although they will discuss food preferences, they will also be concerned about the diabetes regimen, the main difference being the place given to discussion. This concern is revealed below:

*“We discuss if this fits with the regimen, because sometimes her choices may not be ideal”* (Case E-24, mother of a 12-year old diabetic girl, diagnosed at age 7)

Finally, other mothers exerted control but were simultaneously understanding especially on occasions where a little excess is allowed. The mother’s approval is clearly stated:

*“We allow a little excess; if, for example, he wants fried potatoes, he can have some”* (Case E-16, mother of 14-year old diabetic boy, diagnosed at age 7).

Regarding fathers of the diabetic teens, they reported principally warm practices toward diet (8/11). Although two fathers practiced both controlling and warm actions, only one reported controlling practices. The remaining two fathers didn’t remark their feeding practices.

Among the fathers’ responsive actions was their willingness to assist them while leading them toward greater autonomy. Whenever their adolescents commit a mistake, they explain the error in order to avoid it later:

*“We show them what to do; we show them where their errors are, but we do not carry them in our hands all the time. It is necessary, to a given moment, that they grow and support themselves”* (Case E-18, father of a 14-year old diabetic boy, diagnosed at age 12.5)

*“At this moment, we try to complete all their desires”* (Case E-06, father of 12-year old diabetic girl, diagnosed at age 9)

Fathers who were both controlling and responsive; they moderately monitored their teens’ food choices:

*“We do not oversee him. We leave him learn by himself. If he consumes a lot of certain food, he should face the result”* (Case E-25, father of 13-year old diabetic boy, diagnosed at age 12)

### **Perceived adolescents’ autonomy in the context of diet**

As shown in table 2, the majority of diabetic adolescents were perceived capable of performing the basics of nutrition management as preparing sandwiches, regulating carbohydrates’ intake, and calculating portions.

For the adolescents of mothers, twelve diabetic adolescents (12/16) were perceived autonomous and only one seemed to be totally dependent whereas three were seen as somewhat autonomous. More specifically, five diabetic girls of mothers were perceived totally autonomous, two were perceived to be average, and one diabetic girl appeared to be non-autonomous. On the other hand, the diabetic boys of mothers were perceived as totally autonomous with the exception of one who performed better in the presence of his parents as perceived by them.

	Mothers (n=16)			Fathers (n=13)		
	Autonomous	Somewhat autonomous	Non autonomous	Autonomous	Somewhat autonomous	Non autonomous
Girls	5	2	1	3	2	
Boys	7	1		4	2	2

Table 2: Parents’ perceptions of adolescents’ autonomy in diet management

As for the adolescents of fathers, seven diabetic adolescents (7/13) were perceived autonomous regarding diet, two seemed to be totally dependent and four were seen as not totally independent, namely two boys. It seems that their fathers did not perceive diabetic girls as more autonomous than boys.

*“He measures what he eats. He knows how to measure the carbohydrates also, how much carbohydrates are there in his plate. He has his own balance to measure what he eats”* (Case E-29, father of a 14 -year old diabetic boy, diagnosed at age 13.5)

*“Well sometimes he knows what he should eat, other times he doesn’t”* (Case E-28, father of a 14 -year old diabetic boy, diagnosed at age 7)

*“She is autonomous enough in calculating carbohydrates”* (Case E-06, father of a 12-year old diabetic girl, diagnosed at age 9).

### **The relation between parents feeding practices and their children’s perceived capacity regarding nutrition**

Although mothers of diabetic boys appear to be more instructive and controlling than those of diabetic girls, the feeding style does not appear to have great impact on teenagers’ autonomy toward diet. However, as shown in table 3, the only child perceived as being non-autonomous is associated to a mother whose feeding practices was characterized as controlling.

	Mothers and daughters (n=8)			Fathers and daughters (n= 4)		
Diet Feeding Practices	Autonomous	Somewhat autonomous	Non autonomous	Autonomous	Somewhat autonomous	Non autonomous
Control	2	1	1			
Warmth	3	1		3	1	
Control and Warmth						
	Mothers and sons (n=7)			Fathers and sons (n=7)		
Diet Feeding Practices	Autonomous	Somewhat Autonomous	Non autonomous	Autonomous	Somewhat Autonomous	Non autonomous
Control	2	1		1		
Warmth	1			2	1	1
Control and Warmth	3			1	1	

Table 3: Relations between parents’ feeding practices and adolescents’ perceived autonomy toward diet management

The decreased capacity of this adolescent of almost 12 -year old and diagnosed at age 4.5 is illustrated as follows. When asked about her daughter’s capacity: (Is your adolescent resourceful in cooking?) *“Not really, only simple things as a sandwich;*

*she is not that skilled*" (Case E-10, mother of an 11.5-year old diabetic girl, diagnosed at age 4.5)

Interestingly, mothers' responsive actions, described by respecting their adolescents' desires, preparing and buying what they like to eat, and discussing their choices, resulted in a stronger perceived capacity of adolescent to control diet:

*"She calculates her diet. For example, if she has two pita breads, then she herself would say: Oh mom, I can't"* (Case E-21, mother of a 14-year old diabetic girl, diagnosed at age 11.5)

Moreover, two of three teens perceived as being somewhat autonomous in managing their regimen are associated to mothers' reporting a controlling feeding style.

*"Sometimes it is hard because I tell her: well, you should eat that, this is not good for your diabetes then she will grumble or say it doesn't matter"* (Case E-02, mother of a 13-year old diabetic girl, diagnosed at age 8)

Finally, mothers' responsiveness in feeding styles appears to be more associated to the child autonomy regarding diet and diabetes as shown in the following example.

*"She herself calculates her diet. For example, if she has two pieces of bread, then she herself says: Oh mom, I can't."* (Case E-21, mother of a 14-year old diabetic girl, diagnosed at age 11.5)

A similar pattern is found with fathers of girls where fathers' responsiveness in their feeding practices is also associated to greater autonomy regarding regimen:

*"She pays attention to her portions"* (Case E-26, father of a 12-year old diabetic girl, diagnosed at age 10.5)

*"She is autonomous regarding calculating carbohydrates"* (Case E-06, father of a 12-year old diabetic girl, diagnosed at age 9)

Although some responsive fathers perceived their diabetic boys competent in managing the diabetes dietary regimen, the relation is less clear for fathers-daughters or mothers-daughters and sons relations. An example of an adolescent boy's autonomy reported by a responsive father is shown below; his self-efficacy is somewhat impressive since he has been diagnosed for only 6 months.

*“He measures what he eats. He knows how to measure the carbohydrates, how many carbohydrates there are in his plate”* (Case E-29, father of a 14-year old diabetic boy, diagnosed at age 13.5)

In opposition, an example of an adolescent boy perceived as being less autonomous by a father classified as warmth is shown below:

*“The problem is when he visits his friends; there, we inform his friends’ parents about what and when he should eat”* (Case E-20, father of a 13-year old diabetic boy, diagnosed at age 8).

## Discussion

Results of this exploratory study suggest that parents play a vital role in managing the illness of their adolescents. Although we dealt with a small sample size, our study still provided insight about the parents' feeding practices in families with diabetic adolescents aged between 10 and 15 -year old. The parenting practices revealed that parents exercised both warmth and control in the context of feeding. In particular, the mothers of the diabetic adolescents exercised more controlling practices than the fathers. Permissive mothers, who exercised warmth uniquely, were barely demanding and they accepted their adolescents' behaviors however they behaved. Mothers with authoritative feeding practices were moderate and smooth in controlling. In other words, they were never forceful or parent-centered. On the other hand, authoritarian mothers' practices were strict and firm. Those mothers were directive and wanted things to be done in their own way.

Fathers of diabetic teens were warm and accepting and they exerted a minor control, particularly on boys. In contrast to mothers, fathers' practices were dominated with warmth, particularly in our sample this behavior was reported with their diabetic girls. Tangible control was only exerted on diabetic boys.

A possible reason behind this responsiveness of fathers could be the single-parenting status. Adolescents, who live in a single-parented household mainly headed with the mothers, experienced greater responsiveness from their fathers who raised them occasionally. Those fathers may therefore be tender, receptive, and submissive to their adolescents' needs, principally their food desires. This point coincides with the literature addressing that children who live in a single-parent house are more at risk (20).

Moreover, results suggested that mothers' parental practices seemed to be related to their perceived autonomy of diabetic teens toward regimen. Our findings support the literature which demonstrated that parental warmth, defined by authoritative parenting practices and illustrated in respecting the adolescents' food choices, verifying with them the carbohydrate's content in their food, were related to a better dietary control (21, 22, 23).



Moreover, our study suggested that decreased ability of adolescents, more precisely of girls, to control his (her) diet was related to parental restrictiveness, as pushing teens to take more responsibilities, restricting food choices, limiting food quantities, and planning diets. This finding agrees with previous findings that related parental restrictiveness to conflicting parent-adolescent relationship illustrated by rejection and comments' refusal or by excessive submission, affecting negatively their competence in diabetes management (21, 24, 25). Based on our findings, the authoritative parents' practices, characterized by instruction, support, and affection, were associated with a good relationship with their diabetic teens, increased parent-adolescent communication and most importantly seem to influence that diabetic adolescents' autonomy regarding their diet.

We should also be concerned about low level of involvement of parents in diabetes dietary regimen that may negatively affect the perceived adolescent's autonomy. This decreasing involvement could be the result of the socioeconomic status such as the increased number of children in a family, or due to low income, or due to parents' lifestyle. Our exploratory results did not allow us to identify uninvolved parents; however, as expected, mothers were more expressive and appeared to be the ones who took the lead in families with diabetic adolescents as would confirm clinicians interacting with families. They are usually responsible for managing the standard family tasks as well as their adolescents' illness. Therefore, they can be expected to be more engaged in the problems brought up by diabetes, exert more control, and discuss more their adolescents' tasks.

There are some limitations to this study. First, the sample size was small and ethnically restricted to Quebec population. This small size and the restricted ethnicity limited generality, thus, further studies with larger samples and with diverse multi-ethnic populations are recommended. Second, the socioeconomic status of parents, including the total family income, the number of hours spent outside the home, whether one or both parents work, and the highest level of education, was missing. Such assessment strategies would have provided us with more specific variables in families with diabetic adolescents. Data about the adolescents' ability to control

diabetes was collected subjectively i.e. as perceived by their parents rather than based on objective data issued from the medical file. Recruitment of a triad of both parents and the diabetic adolescent is further suggested. The heterogeneity in the age of diabetic adolescents is another limitation of this study. Thus, future studies that sort adolescents according to their age and to the age of diagnosis are recommended.

Despite these limitations, the findings of this study propose conducting a longitudinal study that examines the diverse parental factors as parental support, involvement, and responsibility towards diabetes management reported by the parents as well as the diabetic adolescents. Future work is advised to explore the professionals' styles and practices as well as those of the nutritionists who accompany the diabetic adolescent along his illness.

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## 6. SECOND ARTICLE

**Title:** Parenting styles and parent's treatment practices in families of adolescents with diabetes

Slim May,<sup>1</sup> MS, and Marquis Marie<sup>1</sup>, PhD

<sup>1</sup> *Department of Nutrition, L'Université de Montréal*

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**Address:**

May Slim

Faculté de médecine

Département de Nutrition

Université de Montréal

C.P 6128 succursale Centre-ville,

Montréal, QC, H3C 3J7

Tel: [information retirée / information withdrawn]

Fax: [information retirée / information withdrawn]

E-mail: [information retirée / information withdrawn]

Marie Marquis

Faculté de Médecine

Département de nutrition

Université de Montréal

C.P 6128 succursale Centre-ville

Montréal, QC, H3C 3J7

Tel : [information retirée / information withdrawn]

Fax: [information retirée / information withdrawn]

Email: [information retirée / information withdrawn]

**Running Head:** diabetes, adolescents, styles, practices

**Abstract**

**Objective** To explore the desired parenting styles of parents of adolescents with diabetes, their practiced styles and the relation between these styles and the adolescents' autonomy toward diabetes treatment, as perceived by parents. To explore whether these parenting styles change between a mother and a father or between genders. **Methods** Parents of adolescents with diabetes (N=29) completed parenting styles, parenting practices, and perceived adolescents' autonomy questionnaires. Data were obtained through semi-structured telephone interviews and qualitative analysis of recordings was performed using SEMATO. **Results** Warmth dominated control in the majority of parents' desired styles. Data analysis revealed the exercise of warmth and control in managing diabetes treatment, with mothers being more controlling than fathers. Warmth was associated with increased perceived adolescents' autonomy. **Conclusions** These results support the authoritative parenting style characterized by warmth and involvement for families of adolescents with diabetes. Other parental factors are important and suggest further studies.

**Key words** Adolescents, Parenting Style, Diabetes, Family Functioning

To parents, having a child means achieving all security and developmental tasks to raise him to become an independent adult. Most parents are good parents who want their adolescents to enjoy life, to be well prepared to succeed in life. The only difference is in the techniques they use to bring up their child. From here emerges the expression *parenting style*. Parenting style is defined based on two dimensions: parental demandingness and parental responsiveness (Maccoby & Martin, 1983). Parental demandingness or control is referred to as the extent to which parents demand mature behaviors and supervise their children. Parental responsiveness or warmth refers to the extent of the parents' sensitivity toward their children's likes (Baumrind, 1991).

Based on whether parents have a high or low level of control, and a high or low level of warmth, they were classified by Baumrind (1991) into three types: authoritative, authoritarian, and permissive parents while this latter is further divided into permissive indulgent and permissive uninvolved or neglectful. Table 1 below presents the four different parenting styles.

	High Demandingness	Low Demandingness
High Responsiveness	Authoritative	Indulgent
Low Responsiveness	Authoritarian	Neglectful

Table1: Classification of parenting styles (adapted from Baumrind, 1991)

Authoritative parents control their children's actions, set limits, and monitor their children's behaviors; however, they do this in a loving manner. They are loving as well as logical parents. They are firm but also assure a good relation with a high level of communication and confidence with their child. Authoritarian parents exert firm directives. They follow their children attentively and frequently ask for better results. They are forceful and less responsive to the children's needs and potentials (Aunola, Stattin, & Nurmi, 2000; Baumrind, 1991; Maccoby & Martin, 1983). They set rules and norms of conduct that, to them, should never be exceeded or devalued. Finally,



the permissive parents let their children behave freely and accept them however they act. These parents offer their children infinite freedom. Permissive parents are divided into two types: Indulgent parents who express strong feelings of affection and place little demands, and uninvolved parents who are neglectful, spend less time with their children, and exert little warmth and control (Aunola, Stattin, & Nurmi, 2000; Maccoby & Martin, 1983).

As explained by Costanzo and Woody (1985), different parenting styles result in certain repercussions on their children. Among these, extreme parental constraints may limit their children's potentials in developing normal behaviors and reduce the autonomy of the child in different aspects of life. On the other hand, parents' elevated involvement may induce emotional charges in a child that diminish his ability to self-control and that are correlated with negative self-confidence. One of the most salient findings in research involving the relation between parents and adolescents is that young children living with authoritarian parents are less competent and less motivated in school (Aunola, Stattin, & Nurmi, 2000; Lamborn et al., 1991; Paulson, 1994; Weiss & Schwarz, 1996;), are passive (Aunola, Stattin, & Nurmi, 2000), are less open to society and experience, and they lack self-confidence and self-esteem (Lamborn et al., 1991; Weiss & Schwarz, 1996). Children and adolescents from authoritative homes generally seem to be high academic performers, have positive attitudes toward school (Paulson, 1994; Steinberg, Blatt-Eisenbergart, & Cauffman, 2006) and are usually more cognitively and psychologically competent than other children. They show greater responsibility, scarcely consume drugs and alcohol, and are less prone to troubles and problems (Lamborn et al., 1991; Steinberg, Blatt-Eisenbergart, & Cauffman, 2006; Weiss & Schwarz, 1996). Moreover, children raised in a permissive environment (low control, low warmth) are less self-regulated, and are low academic performers (; Aunola, Stattin, & Nurmi, 2000; Baumrind, 1991; Lamborn et al., 1991; Paulson, 1994; Steinberg, Blatt-Eisenbergart, & Cauffman, 2006; Weiss & Schwarz, 1996). They more often consume alcohol and drugs, are more likely to get in trouble, and are much oriented towards their peers (Aunola, Stattin, & Nurmi, 2000; Paulson, 1994; Weiss & Schwarz, 1996). Thus, in

order to build a strong relation with their adolescents, parents have to retain three principle factors- connection i.e. to be warm, monitoring i.e. to be involved in their activities and, finally, support i.e. to encourage the child's autonomy (Focus Adolescents Service, 2000). Adolescence is so hard for a young healthy adolescent to adapt to, but, it is much more challenging for an adolescent with diabetes (Claes, 2003) since he will have to face not only the standard new developmental tasks but also the demanding regimen of diabetes (Davis et al., 2001; Fleming, Carter, & Gillibrand, 2002; Geoffroy & Gonthier, 2003; Glasgow, McCaul, & Schafer, 1986). In such a context, parenting practices have been demonstrated, in several studies, as a strong contributor in diabetes management (Harris, Mertlich, & Rothweiler, 2001). For example, child-centered parents are expected to be highly responsive to their children's needs and to encourage them for maintaining a low blood glucose level, while parent-centered parents are expected to exert high demands on their children and may punish in case of misbehavior such as forgetting to check blood sugar (Harris, Mertlich, & Rothweiler, 2001). Less demanding parents may ask too little and allow their children to do whatever they want even skipping an injection if the child does not feel like doing so (Harris, Mertlich, & Rothweiler, 2001). Research has investigated that authoritative parenting characterized by high levels of warmth and control, and low levels of strictness and coercive behaviors (Davis et al., 2001; Harris, Mertlich, & Rothweiler, 2001) have been associated with better glycemic control.

The main objectives of the study reported herein were to explore the desired parenting styles of parents of adolescents with diabetes, the parenting styles they used and the relation between these styles and the adolescents' autonomy toward diabetes treatment, as perceived by parents. The secondary objective of this study was to explore whether these parenting styles change between a mother and a father. In this study, diabetes treatment refers to specifically recognizing diabetes symptoms, blood glucose monitoring, and injecting insulin while it does not approach nutritional management illustrated by preparing foods, regulating nutrients' intake, and calculating portions.

## Method

### Participants and Procedure

This study constitutes a part of a larger project aiming at exploring the motivations and the behaviors of adolescents regarding nutrition management namely barriers to dietary regimen adherence, perception of peers' impact on adolescents' behaviors, adolescents' perception of nutritionists, and their interest in diet.

Parents of adolescents with diabetes were recruited at the diabetes clinic of Sainte Justine Hospital, a pediatric hospital located in Montreal. The recruitment of subjects was carried out with the collaboration of the nutritionists and the pediatrician of this clinic. A questionnaire was developed for individual telephone semi-structured interviews and questions were inspired from the literature. The pre-test of this questionnaire was carried out with the first interview. No questionnaire adjustment was needed. Questions addressing the objectives of this study included:

#### Parents' desired and reported parenting style in regard to diabetes treatment

*Imagine yourself participating in a television series: As a parent of an adolescent with diabetes, what message would you like to transmit? What message would you not like to transmit? How would you like the relation with his (her) mother (his father), his (her) friends, his (her) brothers and sisters to be? Suppose that an adolescent of the age of your son (daughter) was newly diagnosed with diabetes. His (her) mother met you and asked for your help, what would you answer her? What if the father asked, would your answer change? What was the most beautiful moment that you remember in relation with your adolescent's illness?*

#### Parents' perception of their adolescents' autonomy toward diabetes treatment

*Does your young adolescent like to eat with his (her) friends? At their place? At your place? At restaurants? What happens with his food plan in such occasions?*

*Generally how do you see his (her) capacity in identifying the symptoms of his (her) diabetes? His (her) capacity in controlling his (her) diabetes?*

This study was approved by two ethics committees: The Faculty of Medicine Ethic and Research Committee at the University of Montreal, and the Sainte Justine Hospital Ethic Committee. Informed consent was obtained from each parent. This study was financed by the Quebec Diabetic Association.

### **Statistical Analysis**

Data from interview transcripts were analyzed by SEMATO software (SEMATO, 2007) - a qualitative analysis software developed at the Université du Québec à Montréal. Semato is a software for semantic analysis of French and English documents. It is designed for the analysis of focus groups, open questions, directed, semi-directed or free interviews, literal or socio-political corpus, as well as articles in newspapers. Semato automatically authorizes multiple analyses between external variables (ex. gender, age) and internal elements (themes from phrases and texts).

First, re-transcribed data were transferred to the server of Semato. Next, different themes addressing the objectives of our study were selected. These themes are: parenting style, control, warmth, nutrition, treatment, and perceived autonomy of adolescent regarding diabetes treatment. Semato automatically divided the text of each interview into paragraphs or sentences that were coded by the first author based on the selected themes. Each interview was coded separately. Coding of interviews was repeated twice by the first author at a time interval of two months. The coding was extensively discussed with a second analyst, the second author.

After all interviews were coded, a cross table was performed for each interview with the themes stated above in an attempt to determine the frequency of each theme in each interview. A further step included a co-occurrence table where the frequency of occurrence of every two themes occurred (e.g. control- treatment). French was the language for data collection, transcription, and analysis. Data reported in this document were translated by the first author and the translation was reviewed and accepted by the second author.

## **Results**

Below are the results of the interviews performed with the parents of adolescents with diabetes. Initially, the profile of participants or parents will be presented. Next, the parents' desired and reported parenting style will be reported. Finally, the relation between parents' parenting style and their child's perceived autonomy will be discussed.

### **Profile of participants**

Twenty-nine parents, sixteen mothers and thirteen fathers, were interviewed. Specifically, mothers were divided equally among the gender of the children i.e. eight were mothers of girls and eight were mothers of boys, whereas the fathers were grouped into five fathers of girls and eight fathers of boys. One father of this study had a girl and a boy with diabetes. Three couples, i.e. mother and father of the same adolescent, participated in the study. The majority of parents (n= 27) was born in Québec while one couple of parents were from Porto Rico.

The total number of adolescent girls was thirteen while that of adolescent boys was sixteen, so this rendered the total of adolescents to thirty. Twenty-eight adolescents had Type 1 diabetes while two had Type 2 diabetes.

The average age of the adolescent girls was twelve years and six months ( $\pm 9$  months) and their average age at the time of diagnosis was eight years ( $\pm 2$  years). Fifty percent of the girls lived with their biological parents, 25% lived exclusively with their mother and 25% were raised separately, evenly by each parent.

The medium age of the adolescent boys was thirteen years and four months ( $\pm 10$  months) and the medium age at diagnosis was nine years ( $\pm 1$  year and 10 months). Eighty-five percent of boys lived with their biological parents while the rest were raised separately, evenly by each parent.

### Desired parenting style

Parents may wish to be either child-centered or parent-centered and they may recommend exerting little demands or high demands on their adolescents.

Table 2 presents the desired parenting styles, and the frequency of occurrence of each factor. In general, analysis of the interviews has shown that the warmth factor dominated the control factor in the majority of interviews. Therefore, the majority of parents, mothers or fathers, recommended child-centered strategies. They differed only in the extent to which they ask for mature behaviors and set limits.

	Mothers (n = 16)			Fathers (n = 13)		
	Control	Warmth	Control & warmth	Control	Warmth	Control & warmth
Daughters	0	5	3	0	5	0
Sons	0	3	5	0	6	2

Table 2: Parents' desired parenting styles of their adolescents with diabetes

All mothers of the adolescents with diabetes encouraged love and affection in parenting. In other words, they showed a sort of warmth in their desired parenting style. However, half of these mothers (n=8) included the control factor in their privileged style besides the warmth factor. Among these eight, five mothers had the control factor dominant over the warmth one. These mothers preferred a directive pattern and favored a no-argument relation with their adolescents. They appeared to be extremely intrusive, hard monitoring, and dictating their adolescents' behaviors. This was revealed below:

*I would like to have a relation of no arguments with him, but life is this way (Case E-03, mother of 12-year old boy, diagnosed at age 9.5)*

The other three mothers, although supported both factors in parenting, they would not recommend restrictiveness or lenience. They encouraged moderation:

*I would like to share with her a good relation, parental but also amicable. A relation where she can be able to say what she feels (Case E-24, mother of a 12-year old girl, diagnosed at age 7)*

In contrast, the other eight mothers (n=8), who entirely preferred warmth, fostered support and comprehension. They supported discussion and shared ideas. The control factor was entirely absent from their privileged styles. This was shown as follows:

*How to help her, I think by being supportive and frank with her (Case E-05, mother of a 12-year old girl, diagnosed at age 8)*

*It is necessary to be very comprehensive toward the child and it is necessary to love him enormously but, at the same time, it is not necessary to treat him as a Martian (Case E-01, mother of a 12-year old boy, diagnosed at age 6.5)*

Going back to the fathers of the teens, it was noticed that the warmth factor also dominated their desired style. Among the thirteen fathers, eleven supported warmth in their desired style whereas only two fostered love and control concurrently. More precisely, all fathers of girls suggested extreme warmth while the control factor was totally absent in their desired style. As for the boys, the majority of fathers, six out of eight, showed exclusively love in their desired style while the remaining two supported both control and warmth. Fathers who were supporters of responsiveness would recommend providing love, supporting and being fundamentally occupied with their adolescents. This was illustrated below:

*To take him on our shoulders and not to leave him alone with this burden, I mean that he doesn't have to take care of all that at one time (Case E-20, father of 13-year old boy, diagnosed at age 8)*

Those fathers, who fostered control and warmth, encouraged moderate monitoring of their adolescents' actions. For example, a parent would recommend the following:

*We should not always stay behind him, however, we should let him learn by himself it is surely a hard task, but we have no choice, he must make good and bad experiences to learn (Case E-25, father of 13-year old boy, diagnosed at age 12)*

Although they would encourage self-control, they would not suggest loading their adolescents with frequent demands. This was revealed below:

*I would like that parents spend time at least to understand what is diabetes, I mean that parents should bear their adolescent and assist him, yet they should try to make him autonomous (Case E-18, father of a 14-year old boy, diagnosed at age 12.5)*

### **Parenting practices regarding diabetes treatment**

Besides describing their desired parenting styles, parents' perception of their own practices revealed the exercise of both warmth and control in managing their adolescents' diabetes treatment. However, mothers of the young adolescents were more controlling than the fathers. More precisely, as presented below in Table 3, four mothers (4/7) were uniquely controlling, one (1/7) exerted both control and warmth, and two (2/7) were responsive. The remaining mothers reported no information about their practices regarding diabetes treatment.

	Mothers (n=7)			Fathers (n= 8)		
	Control	Warmth	Control & warmth	Control	Warmth	Control & warmth
Daughters	2	1	0	0	3	0
Sons	2	1	1	1	3	1

Table 3: Parents' practices regarding treatment

In brief, in the domain of treatment, mothers practiced either warmth or control. In other words, mothers were supportive and helpful; they moderately monitored their teens' actions facing their illness, aiming at making them autonomous in managing



diabetes. An example of a mother who practiced both control and warmth factors is shown below:

*You know, I would like him to do things by himself rather than telling him every time what he should do. Do this; you should inject now; have you done this?* (Case E-14, mother of a 13 years old diabetic boy, diagnosed at age 12).

Three special mothers exerted extreme pressure on their teens to make them adhere to diabetes regimen. These were directive and forceful and monitored their adolescents attentively. Their firmness was illustrated below:

*I know that it bothers you, but you are obliged to inject, you have no choice, do it right now or in 5 minutes, but you are obliged to inject* (Case E-03, mother of a 12 years old diabetic boy, diagnosed at age 9.5)

According to the adolescents' fathers, the majority was responsive and helpful. Specifically, six fathers (6/8) were responsive in their treatment practices, one (1/8) was controlling, and one (1/8) father expressed both factors in his practices. The remaining fathers did not express their treatment practices.

Warm fathers were comprehensive and supportive. In other words, they did not mind giving injections or checking blood sugar levels on behalf of their teens. In transferring diabetes responsibilities to their adolescents, warm fathers were pre-cautious about transferring diabetes management at their adolescent's own rhythm and not forcefully. Below are two examples revealing the warmth practiced by two different fathers:

*As parents, we must manage to help our son in managing his diabetes; we must show him how to manage his diabetes. I can't manage it for my son, it is impossible, it is necessary that I be there to show him how to do it and that I motivate him to be in full charge of himself and to think of how to achieve that* (Case E-11, father of a 15-year old boy, diagnosed at age 5).

*We assure him that he is able to learn and understand how to integrate diabetes at his own rhythm. We do not force him. It happens sometimes that we inject him, and at other time, he injects* (Case E-20, father of 13-year old boy, diagnosed at age 8).

### **Perceived adolescents' autonomy in the context of treatment**

As shown in Table 4, the majority of the adolescents with diabetes were perceived by their parents as capable of executing the fundamentals of diabetes treatment such as realizing diabetes symptoms, injecting insulin, and reading the blood sugar levels.

	Mothers (n =16)			Fathers (n =13)		
	Autonomous	Somewhat autonomous	Non autonomous	Autonomous	Somewhat autonomous	Non autonomous
Girls	5	1	2	3	2	0
Boys	4	3	1	7	1	0

Table 4: Parents' perceptions of adolescents' autonomy in diabetes treatment

According to the mothers' adolescents, nine seemed to be totally ready to control their illness, four were seen as somewhat autonomous, and three were perceived non-autonomous. *He still does not have all the necessary tools to be totally in charge* (Case E-01, mother of a 12-year old boy, diagnosed at age 6.5)

Concerning fathers' adolescents, ten were perceived totally autonomous i.e. capable of controlling their diabetes by themselves, three appeared to be not fully autonomous and no case of non-autonomous adolescent was reported.

### **Relations between parents' treatment practices and adolescents' perceived autonomy toward diabetes management**

As mentioned previously, most parents practiced child-centered strategies i.e. they exercised both factors in managing their adolescents' diabetes keeping into accounts their needs and their fluctuating emotions, with mothers being more controlling than

fathers. Moreover, results of this study revealed that the majority of adolescents were perceived by their parents as being capable of managing their illness with regard to identifying the symptoms, checking blood sugar level, and injecting insulin.

Although mothers showed more control in their practices, this does not appear to have a major effect on teenagers' perceived autonomy toward diabetes management although it decreased their independence. This decreased capacity is illustrated as follows.

*It goes well, but it is always necessary that I monitor him. It is sure that, at this age, it is easier to take things that are forbidden; however, it goes well (Case E-14, mother of a 13-year old boy, diagnosed at age 12)*

Adolescents, who were perceived autonomous, whether totally or moderately, had child-centered mothers i.e. comprehensive and rational. Even if mothers would show control, they would not be forceful. This was revealed below:

*I can say that he is skillful enough, he is conscious of his diabetes (Case E-07, mother of a 14-year old boy, diagnosed at age 12.5)*

Table 5 below reveals the relation between parents' treatment practices and the degree of perceived autonomy of the adolescent.

	Mothers (n=7)			Fathers (n= 8)		
	Autonomous	Somewhat Autonomous	Non autonomous	Autonomous	Somewhat autonomous	Non autonomous
Control	2	2	0	1	0	0
Warmth	2	0	0	5	1	0
Control & warmth	0	1	0	1	0	0

Table 5: Relations between parents' treatment practices and adolescents' perceived autonomy toward diabetes management

Moreover, two teens perceived as being somewhat autonomous in managing their diabetes were associated to mothers who were controlling in their practices.

A similar pattern was found with fathers of adolescents where fathers' responsiveness in their practices was also related to greater autonomy regarding diabetes control:

*Yes he is. There are certain concerns about having better glycemia; on the other hand, this is a family matter, this is not just a personal matter to him. We intervene and we discuss with him his case* (Case E-11, father of a 15-year old boy, diagnosed at age 5)

Interestingly, fathers' responsive actions described by supporting their adolescents, getting involved in their illness, helping them in injecting and monitoring their glycemia, and discussing their struggle with their diabetes, sometimes resulted in a stronger perceived capacity of an adolescent to manage his illness.

An example of an adolescent's autonomy reported by a responsive father is shown below; his self-efficiency is somewhat impressive since he has been diagnosed for only 6 months.

*We don't overly follow him because he has been capable of self-management until now. We keep our eyes on him or he tells us. We do not want to interfere more because this will exhaust him; it bothers him right now you know. But we check once in a while* (Case E-29, father of a 14-year old boy, diagnosed at age 13.5)

An example of an adolescent, who was rather perceived as somewhat autonomous in controlling his illness by her responsive father, is illustrated underneath:

*Well, at this age they need to be supervised and to be frequently reminded. At first he injected himself in the morning and at night* (Case E-22, father of a 13-year old girl, diagnosed at age 11)

In opposition, an example of an adolescent boy perceived as autonomous by a father classified as warm and controlling is shown below:

*According to the results, when we check the numbers, we can notice that he understands well enough the way to do it* (case E-25, father of 13-year old boy, diagnosed at age 12)

## **Discussion**

Results of this exploratory study suggest that parents play a crucial role in their adolescents' illness. Although we dealt with a small sample size, our study still provides interesting data first about the desired parents' styles and their practices in families of adolescents with diabetes, aged between 10 and 15-year old.

This study also revealed that the desired parenting styles are not necessarily those adapted or practiced, mainly for the mothers. In other words, parents who encouraged warmth in their relations with their teen may exert control and limit their adolescents' behaviors. This could be explained by the increased stress that diabetes adds on the family (Davis et al., 2001).

Our results also demonstrated that parents, in general, were responsive in parenting their teens. They favored amicable relation with their adolescents, tried to avoid distinction between them and their other healthy siblings, and encouraged a positive relation with their peers. They tried to facilitate diabetes tasks so that the illness does not hinder their adolescents from enjoying life's activities and fulfilling future dreams. In other words, the study suggested that, even with the control that parents might exert, they were caring for their adolescents' health rather than harassing them. Still mothers were more controlling than the fathers in diabetes treatment, with the fathers being exclusively warm with the girls.

Control that is more tangible was reported by the fathers of adolescent boys. Their control was illustrated by making sure that their adolescents checked their glucose or had injected insulin. A possible reason behind this responsiveness of parents could be the single-parenting status. Adolescents, who live in a single-parented household, most often headed by the mother, experienced greater responsiveness from their father who saw them occasionally. Those fathers were tender and submissive to their adolescents needs. This point coincides with the literature addressing that children who lives in a single-parent house are more at risk (Harris, Mertlich D, & Rothweiler, 2001).

Although our sample does not allow us to search for correlation between the age of diagnosed adolescent and his capacity to self-control treatment, a relation was noticed between the parents' profile and the autonomy of the adolescent toward diabetes management where autonomous adolescents (n=10/15) were raised in child-centered families. Our findings are in line with those from Hanna et al. (2005) who suggested that parental practices were related to the perceived autonomy of diabetic teens, and, in turn, to diabetes treatment regimen. Specifically, our findings on the perceived adolescent's autonomy are in line with the literature which demonstrated that parental warmth (Davis et al., 2001) and support (Kyngas, Hentinen, & Barlow, 1998), defined by authoritative parenting and illustrated in reminding diabetic adolescents to check glucose level or to inject insulin, and helping in administering insulin, was related to a more developed sense of self-efficiency (Davis et al., 2001; Hanna, DiMeglio, & Fortenberry, 2005; Kyngas, Hentinen, & Barlow, 1998).

Moreover, our study revealed that only a few parents were extremely strict in parenting their adolescents. These parents were directive and restricting. Their actions were summarized by frequent demanding to check glucose and to inject, and by pushing them to more responsibilities. These findings are of interest since parental restrictiveness may lead to conflicting parent-adolescent relationship illustrated by rejection, comments refusal or excessive submission which, in turn, affected negatively their competence in diabetes management (Davis et al., 2001; Lewin et al., 2006; Pendley et al., 2002).

### **Limitations of this Review**

There are a number of limitations to this study. First, the sample size was small and ethnically restricted to Québec population, thereby limiting generality. Thus, further studies with larger samples and with diverse multi-ethnic populations are recommended. Secondly the parents' socioeconomic status, including the total family income, the number of hours spent outside home, whether one or both parents work, and the level of education, was missing. Such assessment strategies will provide us with more specific variables for families with adolescents. Data about adolescents'

ability to control diabetes were collected subjectively i.e. as perceived by their parents. This may have contributed to biased results. To help mitigate this problem of bias, other assessment measures can be taken, as 24-hr recall or the glycated hemoglobin measures. Recruitment of a triad of both parents and the adolescent is further suggested. The heterogeneity in the age of adolescents is another limitation. Thus, future studies that sort adolescents according to their actual age and their age when diagnosed are recommended. Despite these limitations, the findings of this study suggest conducting a longitudinal study to examine various parental factors such as parental support and responsibility reported by the parents as well as the adolescents. Future work is advised to explore the professionals' styles and practices and those of the nutritionists who accompany the adolescent along his illness.

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## 7. COMPLEMENTARY RESULTS

In a secondary step, we aimed at exploring the potentials of Semato, a new software developed at the Université du Québec à Montréal (SEMATO, 2007) for future research. In other terms, we aimed at investigating what productive results this software can provide us for future research such as developing specific questionnaires that may help in deducing parenting styles and parenting practices.

Due to the relatively small sample size and the fact that the data used incorporated verbatim including both privileged parenting styles and usual feeding and monitoring practices, perfect results were unexpected. However, the software potential is of strong interest.

Before presenting the results, it is crucial to explain a few terms that were helpful in understanding or interpreting the results. As stated previously, a request of analysis of **similarity networks** was conducted on the body of the themes defining the two dimensions, warmth and control. The similarity networks will allow seeing if certain interviewed persons tend to resemble each other to form a group or **resemblance islets** within the body based on their answers (SEMATO, 2007). As will be presented below, the strongest islets of the similarity networks constitute **the configuration focus**. The configuration focus, following the metaphor of the clearest picture, is the one that shows the strongest resemblance relations among respondents on a given theme (SEMATO, 2007). Generally, the resemblance model is based on the literal content of the interviews. When a theme is dominating for a given network (e.g., the theme *sensitize*) then the model will take a color, for example the network will link each respondent with green color. In our study, the resemblance is based on the themes that defined the demanding and responsive actions of parents in their feeding and treatment practices. These themes as presented previously are: parenting style, demandingness, responsiveness, nutrition, treatment, perceived autonomy of adolescent regarding nutrition, and perceived autonomy of adolescent regarding diabetes monitoring.

In the form of a graphic configuration, a request of analysis of similarity networks of the whole set of parents of the diabetic adolescents on the body of themes defining the two dimensions, responsiveness and demandingness, is presented.

Figure 5 presents the similarity networks of the parents of diabetic adolescents.

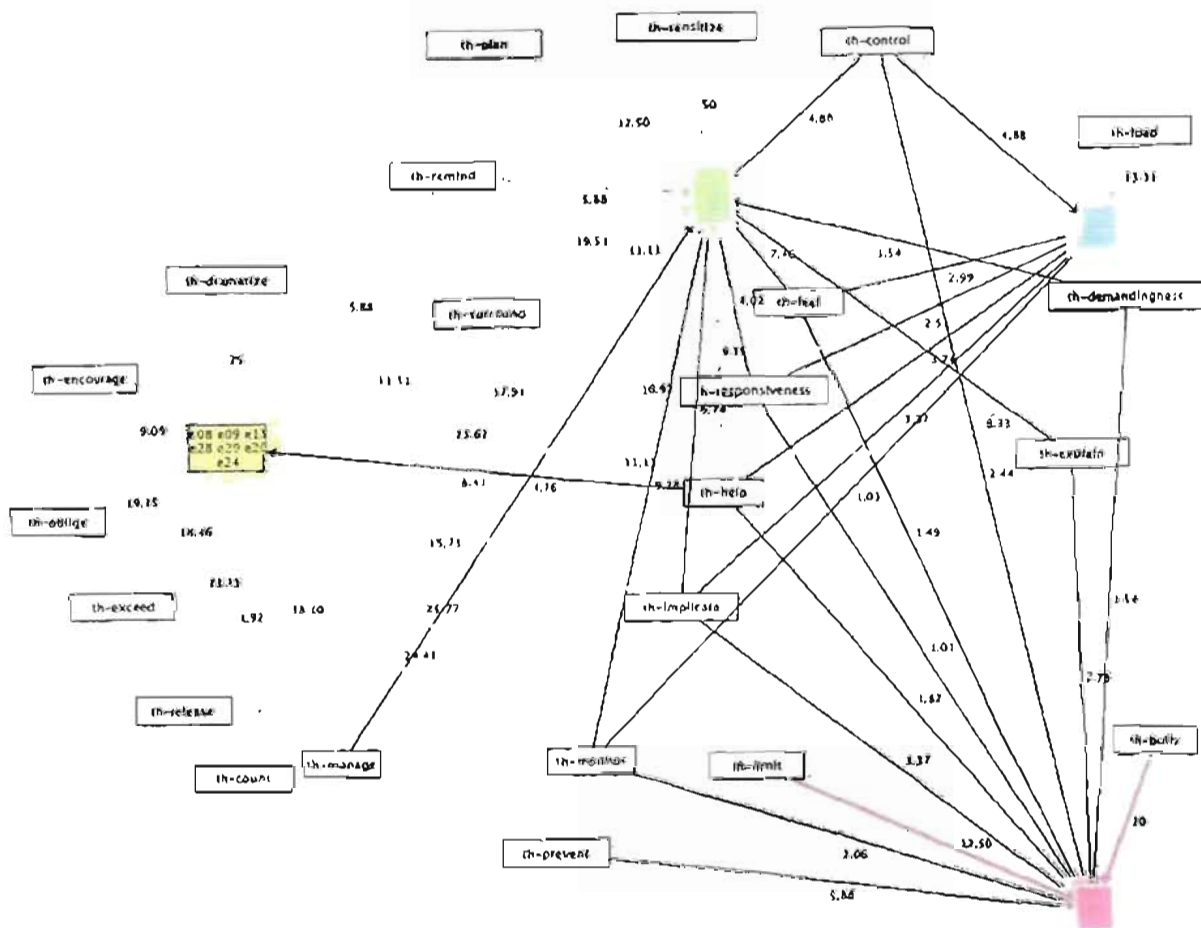


Figure 5: SEMATO similarity networks of parents of diabetic adolescents

In figure 5, we see the global result expected by the similarity networks of the whole group of parents. On the basis of the body of the selected themes, algorithm constructs four groups illustrated by different colors: yellow, green, pink and blue. The arches represent the measure of the resemblance. Some interviews were absent in this graph because they neither resemble enough to any of the previous groups (e.g. the green, yellow, pink, and blue ones) to be integrated nor have a strong resemblance relation to form a new network. Moreover, this configuration reveals that the themes succeeded in identifying a strong group (the yellow) which constituted of the following interview cases: E08, E09, E13, E20, E24, E28, and E29. Its strength is in the number of themes in common between different interviews. Figure 5 also shows the dominant themes of each group i.e. on the basis of which themes each of the groups does construct its coerciveness. We should recall that when a theme is dominating for a given network, for example, the theme *exceed*, then the relation i.e. the arrow takes the color of the same network, herein the yellow color. Then Semato indicates that the themes in common upon which this yellow group was built are: *oblige, guide, exceed, manage, count, prevent, monitor, implicate, responsiveness, demandingness, explain, release, surround, remind, control* and *dramatize*. The dominant theme among these is the theme *exceed* with a percentage of 38.46. This is followed directly in terms of importance by the theme *manage* with a percentage of 38.1.

Another less strong group of interviews is the green one defined by the interviews E04, E07, and E15. In this group, the themes that constituted the relation are: *surround, remind, help, plan* and *sensitize*. The dominant theme of this cluster is the *theme sensitize* with a percentage of 50.

A third cluster is the pink one that includes E10 and E19 with the dominant themes being *bully* and *limit*. This group was identified by Semato as *the configuration focus* which means that parents associated to this group shows the strongest resemblance relations. The last cluster is the blue one that comprises E-18 and E-26 that have in common only one theme, *load*, with a percentage of 33.3.

In an attempt to identify precisely whether that actions practiced by the parents of the diabetic adolescents differ in the fact that the parent is a mother or a father, two additional graphs were designed that showed the specific actions practiced by mother of diabetic adolescents and those practiced by the fathers of the diabetic teens. Figure 6 below shows the actions practiced by the mothers as illustrated by the similarity network.



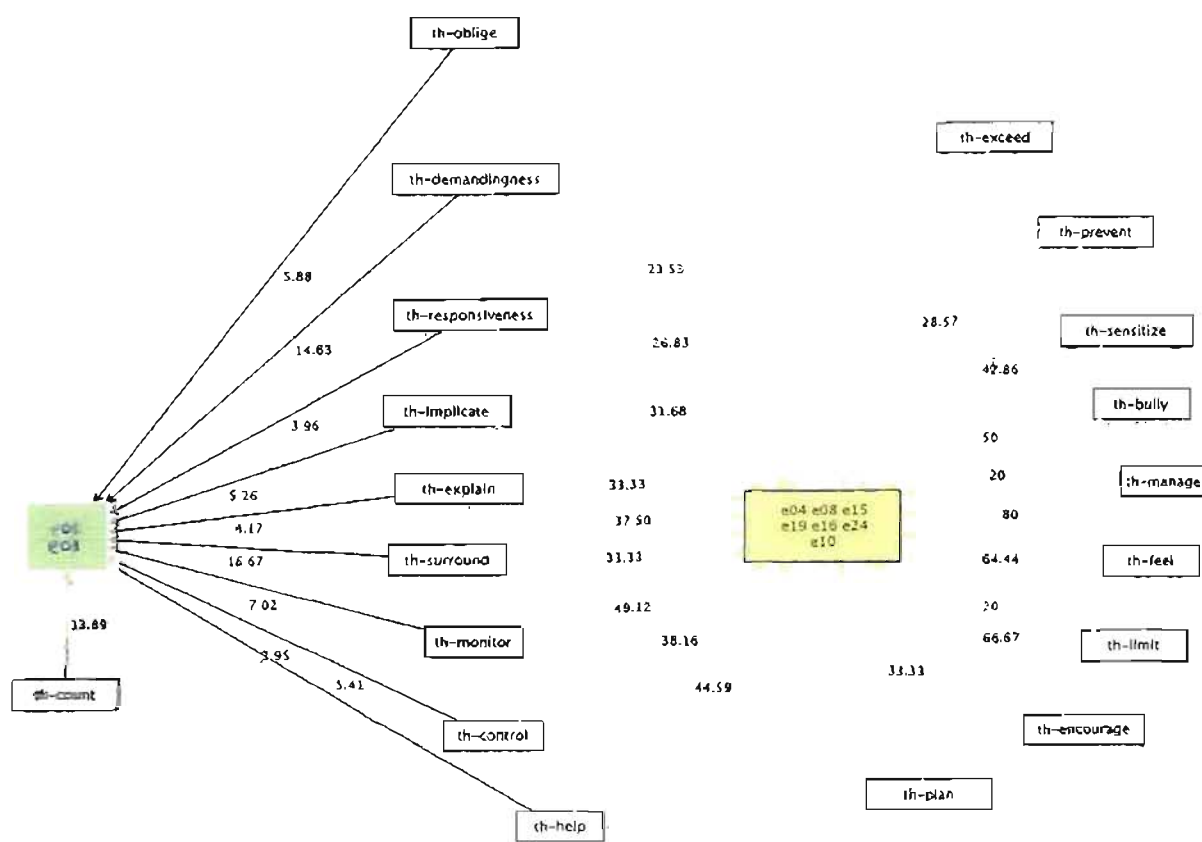


Figure 6: SEMATO similarity networks of mothers of diabetic adolescents

Results obtained from this similarity network reveal two clusters of interviews (yellow and green) with the yellow group being stronger as it is defined by multiple common themes. The interviews included in this group are E04, E08, E10, E15, E16, E19, and E24. Based on what stated previously that the dominant themes in a cluster take the color of the cluster, it was found that all themes were dominant in this yellow cluster with the exception of the theme *count* that was lacking. Among the dominant themes, one strongly contributed in building this relation. It is the theme *encourage* with a 66.67 percentage.

The second green group included only two interviews E01 and E03 that have only one theme as dominant, *count*. It is important to note that this theme is the one that doesn't resemble the yellow cluster. Another important thing to note is that the configuration shows no trace of the following interviews, E02, E05, E09, E21, E07, E12, and E14. The absence of these interviews reveals that these interviews neither resemble each other to form a group nor they resemble the other groups (yellow and green) to adhere to them.

As for the fathers of the diabetic adolescents, figure 7 below represents the analysis of the similarity network of the fathers of diabetic adolescents.

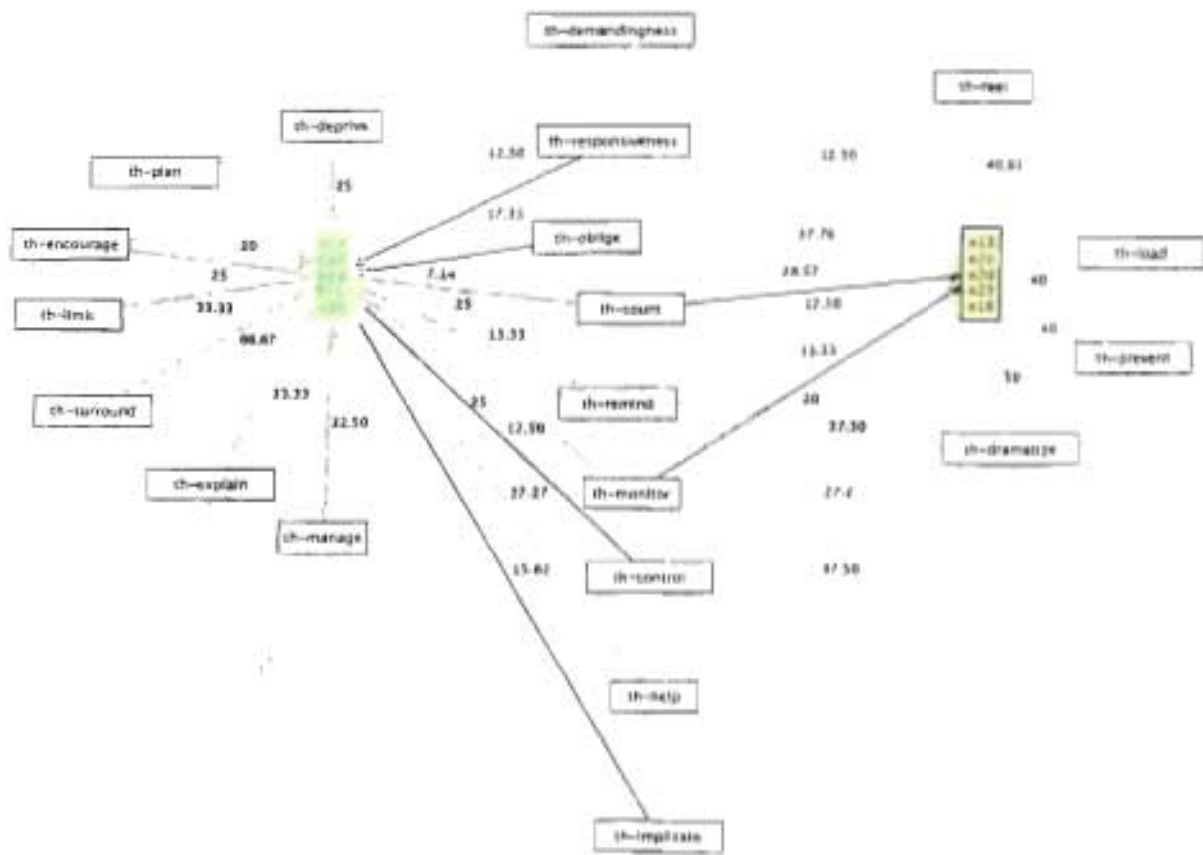


Figure 7: SEMATO similarity networks of fathers of diabetic adolescents

Results of this similarity network revealed also two clusters of interviews, yellow and green groups. Those two groups are of similar strength as they include the same number of interviews as well as an equal distribution of themes. According to the yellow group, the interviews that formed this cluster are E13, E18, E20, E23 and E26. The dominant themes that built up this cluster are illustrated by the themes *feel, load, prevent, dramatize, responsiveness, demandingness, oblige, remind, control, help, and implicate*. The theme *feel* is the strongest among the dominant themes with a percentage of 41.

The green group is defined by the following interviews E06, E11, E17, E27 and E29 and is dominated by the following themes , *deprive, plan, guide, limit, surround, explain, manage, demandingness, count, remind, monitor, and help*. The strongest theme which shows a percentage of 67 is the theme *surround*. The absent interviews that showed no relation of resemblance with each other or with any of these two groups are E22, E25, and E28.

An important finding of this exploratory analysis is the existence of a theme in the similarity networks of fathers of diabetic adolescent that was not noticed among the themes in the configuration of the mothers of diabetic teens. The theme is *deprive*.

The analyst also requested the similarity networks of mothers of diabetic girls, mothers of diabetic boys, fathers of diabetic girls and fathers of diabetic boys separately. However, Semato failed to give us any configuration focus. This failure in obtaining a configuration focus for each case means a failure in obtaining strong relations between each case. In other words, Semato concluded that the actions practiced by each parent are not enough similar to form one or more resemblance groups.

## 8. COMPLEMENTARY DISCUSSION AND CONCLUSION

Based on the request of analysis of similarity networks on the body of the themes defining the two dimensions, responsiveness and demandingness, a review of the results will be presented.

The similarity networks of the whole group of parents (Figure 5) reveal that although each parent has his own way to present his privileged parenting style and his parenting practices, this individuality does not deny the fact that there are some common actions. For example, as revealed in the yellow group in figure 5, parents are clustered among themes suggesting the exercise of common actions as *encouraging* their young diabetics, *reminding* them to check insulin or to verify blood sugar, and allowing *exceeding* diet limits in certain occasions as birthdays.

A counterintuitive result of this figure is the possibility of finding parents with different parenting styles in the same cluster. For example, it is possible to find an authoritarian parent as well as an authoritative one having related actions as in the case of the green group where E10 is an authoritarian mother of a diabetic girl while E19 is an authoritative mother of a diabetic boy. This is easily explained by the manner by which Semato codes the interviews. As previously stated, the profile of parent was determined particularly on the basis of his practices in the domain of feeding and treatment. Knowing that Semato does not differentiate between the parenting style encouraged by the parents and their feeding and treatment practices, and nor between the manner how or the extent to which the action is practiced, then the software associated the same theme or action verb to parents having different parent profiles when analyzed on their practices. To clarify this, the example of the green cluster will be discussed. In this group, it is noticed that the two persons interviewed, E10 and E19, have the themes, *limit* and *bully* in common. Going back to the coding of the interviews, it is noted that E10 had used this terms to show her privileged parenting style “it is to try to combine all, without extremely bullying the child, and even without making him feel frustrated”; however, in practice, she just meant the opposite,

“it is the mother who bullies food” (case E-10, mother of a 11.5 years old diabetic girl, diagnosed at age 4.5).

On the other hand, E19 wanted to reveal the following “I don’t want him to think of me as if trying to bully him or preventing him from eating, I care about his health” (case E19, mother of a 15 years old diabetic boy, diagnosed at age 14). So, although these parents used the same actions, they had different profiles, with E-10 having authoritarian profile while E-19 has an authoritative one.

On the basis of these previous findings and on the fact that Semato gathers interviews in function of the themes’ appearances, then it is clear how those two parents with opposite profiles were joined in one group.

In fact, this finding, i.e. having parents with different profiles in the same group, again supports the results obtained in our study as well as that of the literature that parents’ profiles are classified on the basis of both dimensions, responsiveness and demandingness. In specific, parent profiles’ sorting relies on the extent to which parents are demanding or responsive (Maccoby and Martin, 1983). Thus, since Semato cannot distinguish the extent to which each of those two dimensions is the strongest, then no wonder that a high controlling and low responsive parent i.e. authoritarian was grouped together with a high controlling and high responsive parent i.e. authoritative parent. The same rule can also be applied on the authoritative and permissive parents who were joined together to form one group without taking into account the direction of the profile (high or low).

Taken separately, the similarity networks of the interviewed mothers gave similar results as those of whole group of parents (figure 6). Again, in the mother’s configuration, it was observed that different mothers have multiple practices in common although they have different profiles. In the group with the yellow color, we noticed the presence of three different parent’s profiles at the same time, the permissive profile illustrated by E15, the authoritarian profile defined by E10, and the authoritative profile demonstrated by E04, E08, E16, E19, and E24. Those mothers met in certain actions as *sensitizing* them for diabetes tasks, *monitoring* their

behaviors, as well as *surrounding* them with love and affection. In the other green group which was defined by Semato as the configuration focus i.e. the strongest relation of resemblance, a unique profile was observed, the authoritarian one, with only one dominant theme, *count*. This can be interpreted by the strong resemblance of the themes or action practiced by these two mothers, E01 and E03. The reason behind this grouping of interviews into only two groups is also defined by what is mentioned previously about the coding method of Semato based on the overall verbatim without taking into account the privileged in the real practices as well as the manner by which the parents' profiles were categorized i.e. without taking into account the degree (high or low) to which the parent exercises warmth and control.

Finally, it can be concluded that although the results found herein are counterintuitive because of the reasons exposed namely the inability of Semato to differentiate neither between what is privileged and what is practiced nor between the manner how or the extent to which the action is practiced, Semato shows strong potentials by the manner it relates the themes to the interviews. In other words, the way Semato can be used to cluster interviews i.e. on the basis of the dominant actions practiced by different parents with different profiles would help analysts determine the different actions that define the two dimensions, demandingness and responsiveness. More precisely, on the basis of these clustered actions, an analyst can regroup parents' practices in two specifically-defined columns i.e. one defining the demanding actions and another defining the responsive ones. Since Semato does not show the degree to which control and warmth are exerted, then the analyst can include another column asking parents the degree to which they exert control or warmth. For example, the question could be "to what extent you perceive yourself controlling" and another one that asks "to what extent you perceive your actions as warm". The answer to these questions could be "high or low". By this method, we will have the dimension used as well as the extent to which it is practiced and, in turn, the profile of parent can be determined easily. Therefore, Semato would analyze the verbatim properly and allow us to determine precisely the action verbs that could be used in categorizing parents' profiles.

Concerning the potentials of Semato, it was demonstrated that this software had offered interesting potentials that can be later exploited and used to propose future research implications. For example, we thought of the possibility of writing fictitious interviews of parents, purely representing one or more practices and styles. Then, these interviews would be transferred to Semato to form an initial case to which real interviews would eventually cluster. Indeed, with a questionnaire pertinent to the measures of the styles and practices, new factual interviews could be conducted, re-transcribed, and transferred to Semato to identify the style and practices employed by the interviewed person. As a result, the health care professionals as the dietitians could be sensitized to carefully listen to the parents' specific vocabularies that could be markers of their styles.



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## **10. APPENDICES**

**Grille pour l'entrevue en profondeur avec les parents – version octobre 2002**

**1. Présentation de l'animateur et présentation de la recherche**

Projet : objectif du projet, financement, aspect éthique

Explication relative à l'enregistrement et à la confidentialité des données.

Lettre de consentement à signer et retourner par la poste



**2. Question d'ouverture**

nombre d'années diabète connu

type de diabète

perception de la capacité du jeune à contrôler assez bien son diabète

vérification du sexe et âge de l'enfant

l'enfant habite-t-il avec son père et sa mère



### **3. Mise en situation**

Imaginer que l'on désire faire un téléroman où il y aurait un personnage de l'âge de votre enfant qui a le diabète, et on verrait sa vie de tous les jours, quand il mange, va à l'école, fait du sport, avec sa famille, ses amis, quand il se donne de l'insuline, mesure sa glycémie, etc? On vous offre d'influencer le scénario du téléroman en disant quel message vous aimeriez que l'on passe aux téléspectateurs. C'est l'occasion rêvée de passer un message à des milliers de personnes. Pensez-y quelques minutes. Que voudriez-vous passer comme message? Que voudriez-vous ne pas voir comme message? Comment aimeriez-vous que soit la relation qu'il a avec sa mère (son père), ses amis, ses frères et soeurs?

### **4. Conseils que vous donneriez comme parent**

4. 1 Supposons que quelqu'un de l'âge de votre jeune vient d'apprendre qu'il est diabétique. Sa mère vient vous voir et vous demande comment aider son jeune ? Qu'allez-vous lui répondre?

4.2 Si son père vient vous voir et vous demande un seul conseil pour bien aider son jeune, quel serait ce conseil?

4.3 Auriez-vous une réponse différente selon que le jeune diabétique soit une fille ou un garçon?

### **5. Attitude de l'entourage du parent**

Vous souvenez-vous de la réaction de vos amis, collègues de travail, autres parents, quand ils ont appris que votre enfant était diabétique?

## **6. L'alimentation et les amis**

- 6.1 Votre jeune aime-t-il manger avec ses amis? Chez eux? Chez vous? Au restaurant?
- 6.2 Qu'arrive-t-il avec son plan alimentaire dans ces occasions?
- 6.3 Croyez-vous qu'il (elle) parle de son diabète ouvertement à ses amis?
- 6.4 Est-il(elle) bon(ne) pour identifier les symptômes reliés à son diabète?

## **7. Repas à domicile**

- 7.1 Qui s'occupe de la préparation des repas chez vous? Est-ce que votre jeune sait se débrouiller en cuisine?
- 7.2 Qui s'occupe de faire l'épicerie? Est-il(elle) impliqué(e)? A-t-il(elle) des demandes spéciales?
- 7.3 Quel est son repas préféré? son dessert préféré?

## **8. Sources d'information en alimentation**

- 8.1 Quand vous avez une question sur l'alimentation en relation avec le diabète, que faites-vous? Où trouvez-vous la réponse à vos questions?

8.2 Si quelqu'un était accessible rapidement, par exemple sur internet, pour répondre à vos questions en alimentation, vous en serviriez-vous?

8.3 Dites-moi spontanément à quoi vous fait penser le mot diététiste?

## **9. Clôture**

Pouvez-vous me raconter le plus beau moment dont vous vous souvenez en relation avec le diabète de votre jeune?

## **10. Sollicitations du père et de l'enfant**

Prise de rdv selon le cas

**Fin et merci**



Montréal

### LETTRE DESTINÉE À LA MÈRE OU AU PÈRE

**Sujet :** entrevue individuelle à réaliser avec des mères et des pères ayant un jeune diabétique

Bonjour,

Nous voulons vous informer qu'un projet de recherche est en cours auprès des jeunes diabétiques âgés entre 10 et 15 ans. Le projet vise à mieux comprendre leurs motivations et leurs comportements en relation avec l'alimentation et la prise en charge de leur diabète. Le projet porte sur les influences auxquelles ils sont exposés, le rôle de leur entourage à l'égard de leur alimentation, etc. Il vise aussi à explorer si les mères et les pères ont des attitudes ou des préoccupations différentes à l'égard du comportement alimentaire de leur jeune selon qu'il soit de sexe masculin ou féminin.

Ce projet est sous la direction de Marie Marquis, Ph.D, professeure au Département de nutrition de l'Université de Montréal. *Le Comité d'éthique de l'Université de Montréal autorise cette étude.* L'étude est financée par l'Association Diabète Québec.

**D'ici la fin de l'automne, nous souhaitons réaliser des entrevues individuelles avec des mères et des entrevues individuelles avec des pères ayant un enfant diabétique. Nous parlerons de votre perception de l'influence de leurs amis sur leurs choix alimentaires, de l'influence de leur environnement tels que les médias, de votre propre influence sur le jeune à l'égard de son comportement alimentaire, etc. Nous désirons vous inviter à participer à cette entrevue individuelle qui durera entre 45 et 60 minutes. L'entrevue sera animée par un membre de l'équipe de recherche à l'endroit et au moment que vous désirez soit votre domicile, l'université, votre centre hospitalier de référence, un café, etc.. Nous voulons d'abord vérifier si vous acceptez de participer à cette entrevue.**

Pour réaliser les entrevues, les mères et les pères intéressés seront rejoints par téléphone et un rendez-vous sera fixé. Nous vous remercions à l'avance de votre intérêt pour ce projet qui devrait nous aider à mieux comprendre les comportements et les motivations de jeunes diabétiques.

Marie Marquis, Ph.D. , Département de nutrition, Université de Montréal

Téléphone : [information retirée / information  
withdrawn]



## FORMULAIRE DE CONSENTEMENT

### Informations sur le projet Entrevue individuelle avec la mère ou le père

#### Titre du projet

Les différences sexuelles chez l'adolescent diabétique : effet sur ses attitudes et comportements à l'égard de l'alimentation et prise en compte par les parents et les nutritionnistes.

#### Responsable de la recherche

Marie Marquis, Ph.D

#### Description du projet

Le projet porte sur les motivations des jeunes pré-adolescent(e)s et adolescent(e)s à l'égard de l'alimentation dans la prise en charge de leur diabète. Le projet comporte trois phases. La partie du projet dont il est question dans la correspondance que nous vous envoyons ne réfère qu'aux entrevues individuelles avec les mères et les pères soit la Phase 2. Pour votre information voici les trois phases du projet :

La Phase 1 vise à vérifier si des différences sexuelles peuvent expliquer certains comportements chez l'adolescent, l'effet de différentes sources d'influence sera exploré. Un total de 20 groupes de discussions seront réalisés avec des enfants fréquentant le Camp Carowanis.

La Phase 2 vise à explorer si les parents ont développé des attitudes pouvant favoriser ou freiner le contrôle du diabète selon que leur enfant soit de sexe masculin ou féminin. Un total de 16 mères seront rencontrées en entrevue individuelle, 16 pères seront aussi rencontrés en entrevue individuelle.

Finalement dans la Phase 3, le projet vise à vérifier les approches privilégiées par les nutritionnistes dans le traitement du diabète et leurs perceptions des différences reliées au

sexe de l'adolescent. Un total de 345 nutritionnistes seront sollicités pour compléter un questionnaire.

### **Objectifs de la recherche**

Les objectifs de l'ensemble de l'étude sont :

- d'explorer dans quelle mesure les différences sexuelles permettent d'expliquer des motivations différentes en relation avec l'alimentation dans la prise en charge du diabète par l'adolescent diabétique
- d'explorer dans quelle mesure les parents entretiennent certaines attitudes selon le sexe de leur enfant, ayant un impact possible sur les comportements alimentaires et pouvant favoriser et /ou freiner le contrôle du diabète chez le jeune.
- d'explorer dans quelle mesure les nutritionnistes du Québec, ayant une expertise en diabète, privilégient certains types d'interventions nutritionnelles avec les adolescents et sont sensibilisés à l'effet des différences sexuelles sur les motivations alimentaires des jeunes.

### **Nature de votre participation comme parent**

Si j'accepte de participer à une entrevue individuelle, la rencontre d'une durée de 45 à 60 minutes aura lieu après entente sur le lieu et le moment qui me convient. La discussion sera enregistrée sur magnétophone puis retranscrite pour être analysée.

### **Avantages et bénéfices**

Si j'accepte de participer à la Phase 2 de ce projet, je contribuerai au développement des connaissances sur l'étude des déterminants des comportements et motivations de l'adolescent diabétique. Il s'agit d'un champ de recherche actuellement peu développé en relation avec le diabète. Les données pourront permettre de sensibiliser les parents sur l'influence des différences sexuelles chez l'adolescent comme facteurs explicatifs de ses attitudes et comportements à l'égard de son alimentation.

### **Inconvénient et risque**

Selon la responsable de ce projet, il n'y a aucun inconvénient à ce que je participe à ce projet.

### **Retrait**

Ma participation est totalement volontaire. En tout temps je pourrai décider de ne pas poursuivre l'entrevue sans que cela me nuise de quelques façons que ce soit. **Confidentialité**

Ma participation demeurera strictement confidentielle. Les informations obtenues dans ce projet ne serviront qu'à la recherche, après quoi elles seront conservées au bureau du chercheur principal dans un classeur sous clé à l'Université de Montréal. Les informations inscrites sur le formulaire de consentement seront détruites trois ans après le début du projet.

### **Indemnité**

Aucun montant d'argent ni cadeau ne sera reçu pour participer à cette étude.

### **Personne ressource**

En tout temps, la personne suivante pourra répondre à mes questions :

Marie Marquis, responsable de la recherche: [information retirée / information withdrawn]

Pour toutes questions relativement à l'éthique veuillez contacter le Dr Vincent Castellucci au [information retirée / information withdrawn]

**Déclaration du participant**

Je, sous-signé(e) \_\_\_\_\_ déclare

(signature de la mère ou du père)

1. avoir compris l'objectif de l'étude et le rôle que j'aurai à y jouer
2. avoir reçu les réponses à mes questions concernant ce projet
3. avoir eu assez de temps pour lire, comprendre les documents et réfléchir avant de prendre une décision
4. avoir été informé que le comité d'éthique de l'Université de Montréal a approuvé ce projet.
5. que j'accepte librement et volontairement d'y participer

J'autorise l'utilisation des informations que je fournirai uniquement à des fins de recherche. Je me réserve le droit de me retirer du projet en tout temps.

\_\_\_\_\_  
\_\_\_\_\_

**nom de la mère ou du père en lettres moulées**  
**date**

\_\_\_\_\_  
\_\_\_\_\_

**signature**

Téléphone pour prise de rendez-vous : \_\_\_\_\_

\_\_\_\_\_

Ne rien inscrire dans cette partie

**Déclaration du responsable de projet**

Je, sous-signé(e), \_\_\_\_\_ certifie avoir transmis au signataire les  
(nom du responsable du projet)

informations sur le projet de recherche, avoir répondu à ces questions concernant le projet, et lui avoir  
clairement indiqué qu'il demeure libre de se retirer du projet en tout temps.

\_\_\_\_\_  
signature du responsable de projet

\_\_\_\_\_  
date