

Université de Montréal

**The Relationship Between Parental Practices and Suicidal Behaviors
in Québec Adolescents**

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The Relationship Between Parental Practices and Suicidal Behaviors in Québec
Adolescents

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Abstract

This thesis explores the relationship between the risk of suicidal behaviour in adolescents and their perception of parental practices used in their families. This study is primarily aimed at investigating the association between suicidal behavior in a Montreal sample of adolescents and several aspects of their parents' parental practices including parent-child bonding, parental psychological and behavioral control, and parent-adolescent conflict. The second goal of this thesis was to examine the effect of parents' marital status on adolescents' suicidal behavior. The final objective of this study was to explore the link between gender difference and vulnerability to suicidal behavior in adolescents. The participants of this study included 1096 Montréal high school students, aged between 11 and 18 years, equally divided in boys and girls, in the province of Québec, Canada. There were two groups involved in this study: non suicidal and suicidal behavior. The suicidal behavior group included both suicidal ideation and suicide attempt behaviors. A self-report questionnaire was administered to evaluate the level of parent and child bonding, the quality of parental psychological and behavioral control, and the level of adolescent's conflict with each of the parents and risk of suicide in young individuals. A series of descriptive analysis and a multivariate analysis of covariant (MANCOVA) was

performed in order to test the hypotheses of the study. The general hypotheses of the study postulating that adolescents who perceived a more troubled relationship with their parents, were at a higher risk of suicidal behaviors were confirmed. The evaluation of parental practices characteristics after being controlled for psychological distress and family structure concluded that in the case of intact families the high emotional impact and frequency of conflict with the mother, lack of maternal emotional bonding, excess of maternal psychological control, and lack of maternal supervision are significantly related to adolescents' suicidal behaviors. In both families structures, the strongest significant characteristics of paternal parental practices perceived by adolescents with suicidal behavior was the lack of emotional bonding between father and child, the high impact and frequency of conflict between them, and lack of paternal supervision respectively. These results are interpreted in the light of socialization theory which emphasizes on the crucial role of the quality of the parent- adolescent bonding as a protective factor against suicidality in adolescents.

The result also revealed that adolescent girls are at a higher risk of demonstrating suicidal behaviors such as ideation and attempt than boys. The findings of this study demonstrate an urgent need for more research on adolescent's suicidal behavior and risk factors especially on parents' marital status. The study also highlights the necessity of designing

prevention programs specifically aimed at adolescents with an elevated risk of suicide.

Key words: suicide attempt, suicide ideation, parental practices, parent-child bonding, psychological and behavioral control, parental tolerance, impact and frequency of parent-adolescent conflict, gender difference, family structure.

Sommaire

Cette thèse examine les liens entre la présence de risques suicidaires chez les adolescents et leur perception des pratiques de chacun de leurs parents. L'étude a examiné l'association entre le comportement suicidaire et différents aspects des pratiques parentales incluant l'affection, l'exercice du contrôle comportemental et psychologique ainsi que les conflits entre parent et adolescents. La thèse a également examiné l'effet du statut matrimonial des parents sur le comportement suicidaire chez les jeunes. Le dernier objectif de l'étude a été d'explorer le rôle du sexe de l'adolescent comme facteur de vulnérabilité face au suicide. L'échantillon de l'étude était composé 1096 adolescents Montréalais, âgés de 11 à 18 ans. L'échantillon était également réparti entre filles et garçons, fréquentant deux écoles secondaires de la région de Montréal, dans la province du Québec au Canada. Il y avait deux groupes à l'étude : le groupe suicidaire et le groupe non-suicidaire. Le premier groupe incluait les sujets présentant des idéations suicidaires et ceux ayant fait une ou plusieurs tentatives de suicide. Un questionnaire auto-rapporté fut administré à chaque sujet pour évaluer les dimensions suivantes auprès de la mère et du père : le niveau de proximité affective, le niveau de supervision parentale, le contrôle comportemental et le contrôle psychologique, la tolérance à l'égard des amis,

ainsi que la fréquence et l'impact émotionnel des conflits. Une échelle a également évalué la présence éventuelle de comportements suicidaires chez les jeunes. Dans le but de tester l'hypothèse de base de l'étude, une série d'analyses descriptives et une MANCOVA ont été réalisées. L'hypothèse générale de la thèse postulant que les adolescents ayant des risques suicidaires présenteraient des relations plus problématiques avec leurs parents fut confirmée. En contrôlant l'effet de la détresse psychologique des adolescents, les analyses ont mené à la conclusion que, dans les familles biparentales, un faible niveau de proximité affective avec la mère, une fréquence plus élevée de conflits avec la mère, un excès du contrôle psychologique et un plus faible niveau de supervision maternelle, présentaient des liens significatifs avec le comportement suicidaire chez les adolescents. Indépendamment de la structure familiale, les caractéristiques suivantes du père étaient respectivement perçues par l'adolescent comme ayant des liens significatifs avec le comportement suicidaire des adolescents: faible proximité affective, impact émotionnel et fréquence élevée des conflits ainsi que le manque de supervision. Ces résultats ont été interprétés à la lumière des théories de la socialisation qui mettent l'accent sur le rôle central de la qualité des liens affectifs entre parents et adolescents, comme facteur de protection contre les risques suicidaires. Les résultats ont aussi révélé que les filles adolescentes sont plus exposées

aux risques suicidaires tels que tentatives et idéations suicidaires. Les conclusions de cette étude soulignent le besoin urgent de recherches plus poussées sur le comportement suicidaire des adolescents et leurs liens avec les facteurs familiaux, en tenant compte du statut matrimonial des parents. La thèse met également l'accent sur la nécessité de mettre en place des programmes de prévention auprès des adolescents présentant des risques suicidaires élevés.

Les mots clés: idéations suicidaires, tentative de suicide, pratiques parentales, liens affectifs parentaux, contrôle psychologique, supervision parentale, tolérance parentale, impact émotionnel et fréquence des conflits parent-adolescent, sexe, structure familiale.

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Chapter 1

Adolescence and Suicidal Behavior

Introduction

This section introduces the main subjects of the thesis: suicide, adolescence, and parental practices. The objective is to define each concept to better understand the problem of adolescent suicide as well as parental practices and their possible link to youth suicidal behaviors: indeed, parent and child relationships and parental practices in general play a critical role in the mental well-being of adolescents and are often associated with suicidal behaviors. Epidemiology, gender differences and risk factors as well as suggested theories for adolescent suicidal behaviors will also be discussed.

Adolescence Suicide: A Serious Social Concern

Interest over the increase in adolescent suicidal behavior in industrial countries has grown rapidly in recent years: in North America, it has become one of the major concerns of researchers and health care professionals (Canadian Association of Suicide Prevention, 2004; Kutcher and Szumilas, clinical report 2008; Shain and the adolescent committee, American Academy of Pediatrics, 2007).

According to Grunbaum, *et al.* (2004), the latest Youth Risk Behaviors Surveillance survey in the United States suggests that among the 15,000 high school students' participants from 32 states and 18 local municipalities, 16.9% of adolescents seriously considered attempting suicide, 16.5% developed a

suicide plan, and 8.5% attempted suicide during the 12 months period prior to the survey.

Among those adolescents 2.9% attempted suicide in a manner requiring emergency medical treatment. Pfeffer (2001) has also pointed out that in the past three decades there has been a 19.3% increase in suicide rate among 9th- 12th grade students, with 8.3% who made at least one suicide attempt and 2.6% who made a medically serious attempt.

Canada is no exception to the rest of the industrial countries in terms of youth suicide. The Canadian Association for Suicide Prevention's (CASP) latest publication in 2004 revealed that suicide is the second leading cause of deaths among Canadian youth aged 10-19 and that it had increased from 1990 to 2001 and stable from 2001 to 2004. Table 1 gives a detailed picture of the Canadian number of death by suicide for different ages.

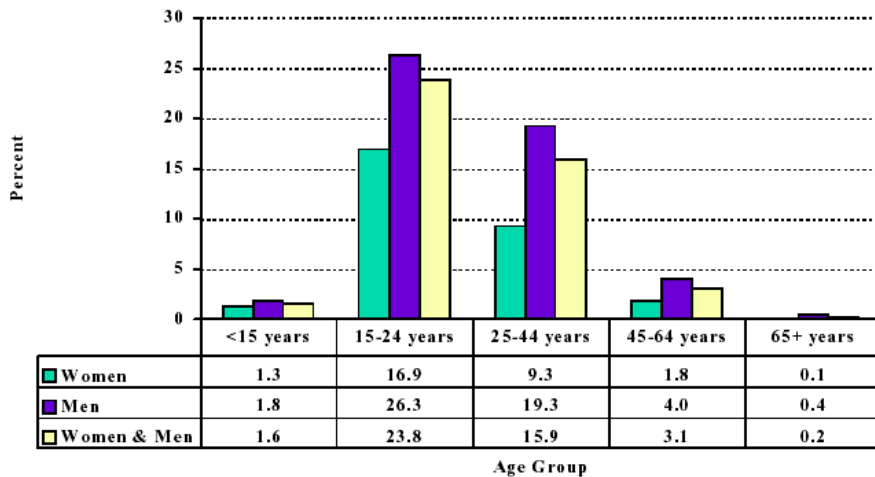
Table 1. Suicide and Suicide Rate, by Age Group 2008 (number of suicide)

Age Groups	1996	1997	2000	2001	2002	2003	2004
All Ages	3941	3681	3606	3692	3650	3765	3613
10-14	41	51	46	27	35	27	28
15-19	231	261	225	297	215	216	210
20-24	350	293	317	296	277	306	270

Source: Statistic Canada, CANSIM, Table 102-0551 and Catalogue no. 84 F0209X
Last modified: 2008-02-26

Canadian suicide rates follow the North American pattern of youth suicide. Langlois and Morrison (2002) have reported that suicide is a major cause of death among Canadian youth. A total of 3,699 Canadians, including 608 individuals under the age of 24, died of suicide in 1998. Among people aged 15-24, 23.8% of total deaths was caused by suicide. Figure 1. shows that both male and female adolescents were among the group with the highest rate of suicidal death. However, young boys had a higher rate of death from suicide due to reasons, which will be discussed further. The figure also shows that girls aged 15-24 had one of the highest rates of mortality due to suicide among women of all ages.

Fig 1. Proportion of all Deaths Due to Suicide by Age and Sex, Canada, 1998



Source: Centre for Chronic Disease Prevention and Control, Health Canada using data from the Mortality File, Statistics Canada

Suicidal Behavior: Terminology

Definition of Suicidal Behaviors

The first step in understanding suicidal behavior is to determine a clear and precise definition of the term "suicide". The term suicide has been known under different names throughout history, including "*mors voluntaria*" and "*autothanasia*" (Van Hoof, 1990). Wekstein (1979) believed that the existing attitude toward suicide in different eras had played an important role in defining suicide. He suggested that many factors, including religious and philosophical beliefs, as well as cultural and moral values, created different perceptions of suicidal behavior in different periods of history.

There are different approaches to defining the term suicide. Etymologically, the word "suicide" comes from the two Latin words *Sui* (one's own, self) and *Cide* (killer), which together means self-killing and self-murder.

Durkheim proposed one of the earliest formal definitions of suicide in 1897. He defined suicide as "all cases of death resulting directly or indirectly from a positive or negative act of the victim himself, which he knows will produce this result" (Jones, 1986).

Schneidman (1993), a well-known figure in suicidology (the study of suicide), presented another definition of suicide and suicidal behavior. According to him suicide was a "conscious act of self-induced annihilation, best understood as a multi-

dimensional malaise in a needful individual who defines an issue for which the suicide is perceived as the best solution". Schneidman emphasized on the effect of culture and time on the definition of the term "suicide". According to him, in some cultures, suicide does not have the same characterization as others. The idea of "suicide bombing" in today's society is a very good example of what Schneidman tried to explain in his approach to defining suicide. Unlike in our culture, the suicide bomber's voluntary death for political or religion purpose is not necessarily perceived as suicide.

O'Carroll proposed the most commonly used definition of suicidal behavior in 1996. The World Health Organization (WHO) adopted this definition as a guideline for research on suicide all over the world. According to O'Carroll a *suicidal act* is "a potentially self-injurious behavior for which there is evidence (explicit or implicit) that the person intended to some (non-zero) level to kill himself/herself". A suicidal act may result in death (completed suicide), injuries, or no injuries. The suicidal behavior spectrum is broad and O'Carroll and his colleagues have tried to present a particular definition for each type of behavior in order to distinguish them.

A *completed suicide* is "death from injury, poisoning or suffocation where there is evidence (either explicit or

implicit) that the injury was self-inflicted and that the deceased intended to kill himself or herself".

A *suicide attempt with injuries* refers to "an action resulting in non-fatal injury, poisoning, or suffocation where there is evidence (either explicit or implicit) that the injury was self-inflicted and that the person intended at some (non-zero) level to kill himself or herself".

A *suicide attempt* is "potentially self-injurious behavior with a non-fatal outcome, for which there is evidence (either explicit or implicit) that the person intended at some (non-zero) level to kill himself or herself. A suicide attempt may or may not result in injuries".

A *suicide threat* is "any interpersonal action, verbal or nonverbal, stopping short of a directly harmful act, that a reasonable person would interpret as communicating or suggesting that a suicidal act or other suicidal-related acts might occur in the near future".

Finally the term *suicidal ideation* is defined as "any self-reported thoughts of engaging in suicide-related behavior". Although the earlier approaches to defining suicidal behavior by Durkheim and Schneidman seem reasonably less complicated than that of O'Carroll, they do distinguish between different types of suicidal behavior. Suicidal behaviors as was shown by O'Carroll belong to different categories, depending on the degree of seriousness of the act, which should be defined precisely. It is important for the

research community to have a universal definition for each type of suicidal behavior in order to identify the exact problem, exchange information, replicate research, and provide efficient intervention programs to prevent suicide. Without a common worldwide definition of suicidal behavior it is hard to be sure two studies on suicide are investigating a similar phenomenon.

The World Health Organization definition is a standard, which almost completely solves this problem by including a wide spectrum in defining suicidal behavior. There is a great need in the research domain for categorization of suicidal behaviors based on seriousness of the act. Such a categorization would help to distinguish the etiology, symptoms, and the necessary measures that need to be taken (depending on the severity of the act) in treating the suicidal patients. A demarcation point for each type of suicidal behavior is necessary to distinguish between a seriously lethal suicidal act and a non-lethal suicide threat, which very often is a cry for help or a demand for attention. It is important to realize that different treatments should be given in each circumstance. A good knowledge of the different categories and symptoms would also contribute to a better understanding of the way suicidal individuals communicate and express their feelings.

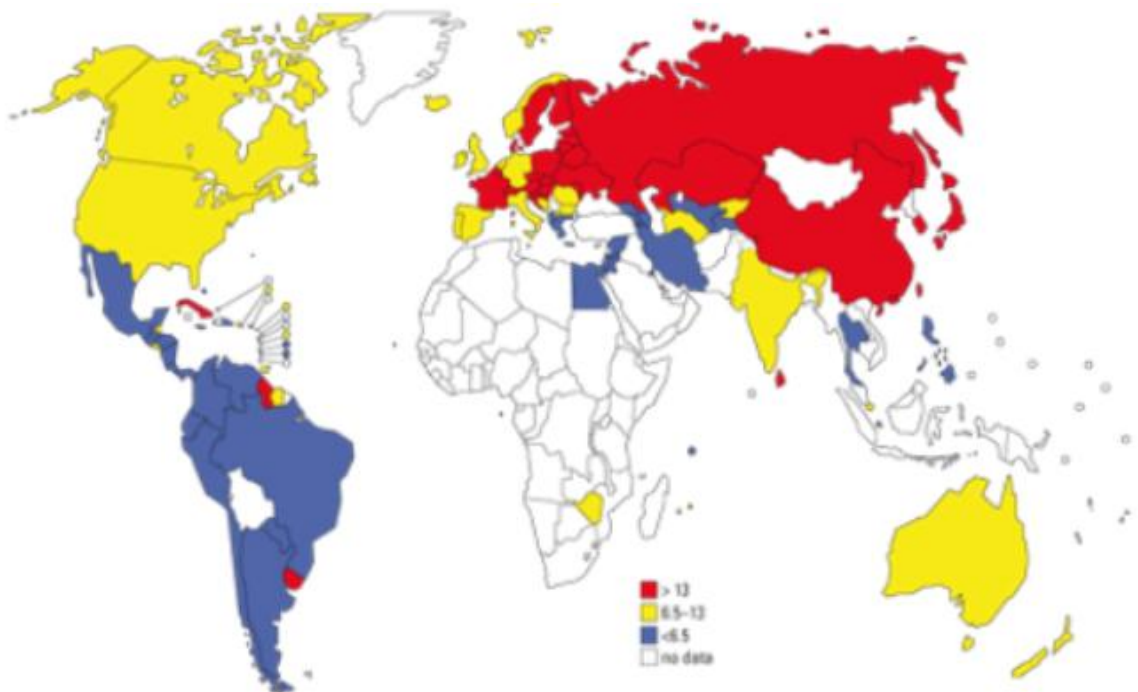
Epidemiology of Suicide

The following section respectively shows the way that different categories of suicidal behaviors including completed, attempt and ideation are represented in the world at large, the United States, Canada, and more specifically in Quebec.

i) Completed Suicide

According to the World Health Organization, the rates of suicide in industrial countries are high. Fig 2 indicates that Australia, Europe and North America have a high rate of suicide

Fig 2. Map of Suicide Rate, Per 100 000 Most Recent Year Available As of 2007



World Health Organisation 2007

Fig 3. Change in the Age Distribution of Cases of Suicide Between 1950-2000

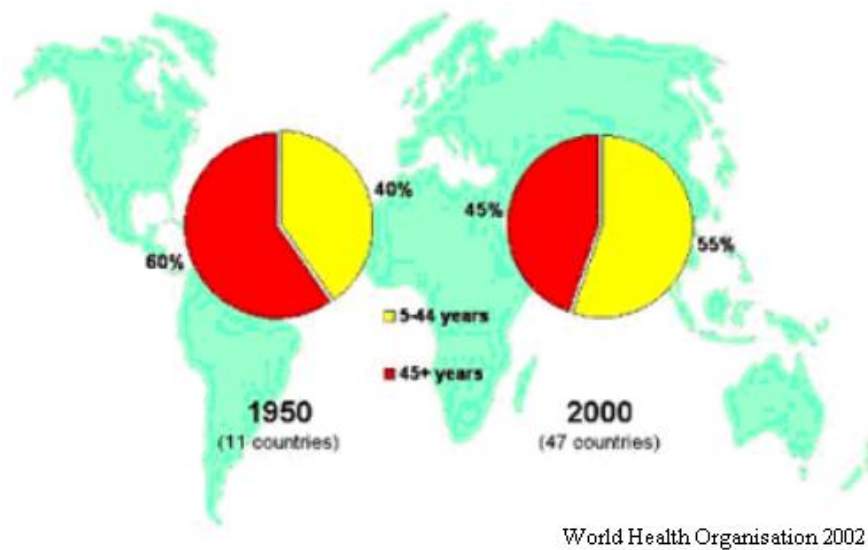


Figure 3. shows that the rate of suicide for the people under 44 had increased 15% all over the world in the past four decades.

Gender plays a role in completed suicide in different ways all over the world. According to the data published by the World Health Organization (2002, [www.who.int/mental health](http://www.who.int/mental_health)), the rate of completed suicide for 15-24 years old males is much higher than for females in North America and many western countries. However, in some Eastern countries, such as Singapore and China, the rate of suicide for this age group is almost equal or even higher among females. The higher rate of completed suicide among females is due to these countries' cultural characteristics and the expectations placed on women by society. Table 2 shows the rate of suicide by age group and gender in different countries.

Table 2. Youth Suicide Rate by Age, Sex, and Country

Country	Year	5-14 years			15-24 years		
		M *	F*	M:F *	M*	F*	M:F *
Canada	1997	1.9	0.6	3.2	22.4	4.5	5.0
China (Rural)	1998	0.9	1.0	0.9	8.4	15.2	0.6
Finland	1998	0.9	0.6	1.5	29.5	7.9	3.7
Italy	1997	0.2	0.2	1.0	8.5	1.8	4.7
New Zealand	1997	3.0	1.4	2.1	38.1	13.3	2.9
Russian Fed	1998	3.0	0.7	4.3	51.9	8.6	6.0
United States	1998	1.2	0.4	3.0	18.5	3.3	5.6

Rate per 100 000.

Sources: World Health Organization. http://www.who.int/metal-health/Topic_Suicide/suicide1.html (cited in Gould et al, 2003).

*M: Male F: Female M:F Male to Female ratio

In the past three decades, the rate of suicide has increased rapidly among the 14-24 age group (Gould, Greenberg, Velting, & Shaffer, 2003). Researchers (Brent et al., 1991; Galvan, Hare, Voss, Glover, Casey, 2007; Kirkcaldy, Brown, Siefen, 2006; Makhija & Sher, 2007; She et al., 2006; Streib et al., 2007) have proposed different explanations in terms of diagnostic, social, and family factors for this drastic increase in suicide rates among this age group. These factors include accessibility to drugs, alcohol, and firearms, as well as the availability of guns, and changes in the prevalence of substance abuse.

The latest Center for Disease Control's (CDC) National Center for Injury Prevention and Control publication revealed that in the United States, suicide was the third leading cause of death among 15-19 year olds (Table 3).

Table 3. Leading Causes of Death by Age in U.S., 1999*

Causes of Death	Total		Whites				African- Americans			
	Rank	Rate	Males		Females		Males		Females	
			Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate
10-14 years										
Accidents	1	8.3	1	10.4	1	5.8	1	13.6	1	6.4
Suicide	4	1.2	3	2.1	6	0.6	7	1.4	7	-
Homicide	3	1.3	4	1.2	4	0.8	2	3.5	4	1.6
15-19 years										
Accidents	1	33.9	1	53.5	1	23.6	2	37.1	1	13.4
Suicide	3	8.2	2	13.9	3	2.9	3	10.0	5	1.6
Homicide	2	10.6	3	8.7	4	2.4	1	63.2	2	10.2
20-24 years										
Accidents	1	38.7	1	60.6	1	17.9	2	54.5	1	16.0
Suicide	3	12.7	2	22.1	4	3.5	3	19.4	6	2.3
Homicide	2	16.1	3	12.5	3	3.7	1	110.6	2	12.8

*Ranking within the 10 leading causes of the death.
Rate per 100 000.

Sources: CDC national Center for Injury Prevention and control, Office of Statistics and Programming. <http://wonder.cdc.gov/mortsql.ghtml>. (cited in Gould et al, 2003)

The rate of completed suicide varies by age. Among 15-19 year-olds, the suicide mortality rate is 8.2 per 100,000, which is equal to 5.5 % (Gould, 2003). Suicide accounts for approximately 2% of the annual deaths in Canada since the late 1970s. The latest publication of the Canadian Association for Suicide Prevention (2004) revealed that the Canadian death rate for suicide has increased by 73%, from 7.4% in the 1950s to 12.9% in the 1990s. Figure 5. shows the suicide rate for all ages in Canada.

Fig 4. Suicide Rate and Death in Canada for All Ages, 1950-1999

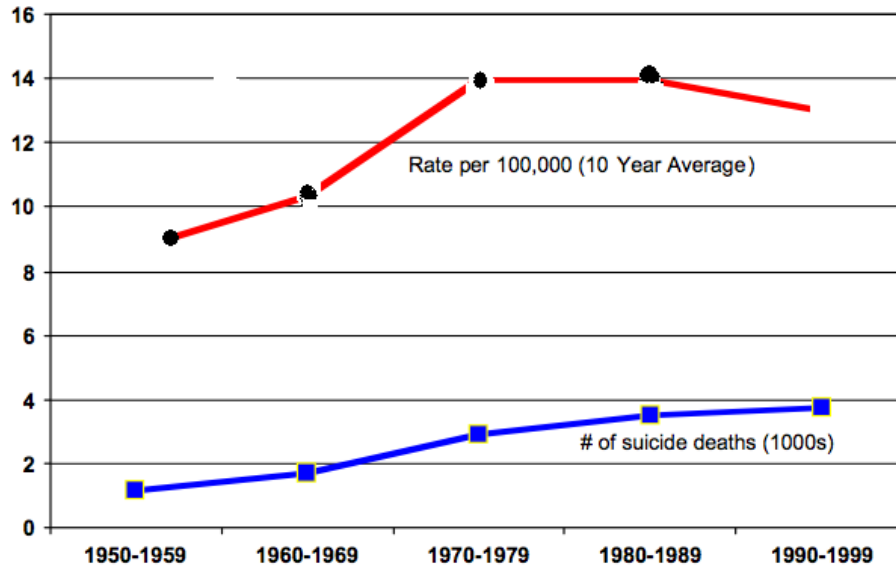
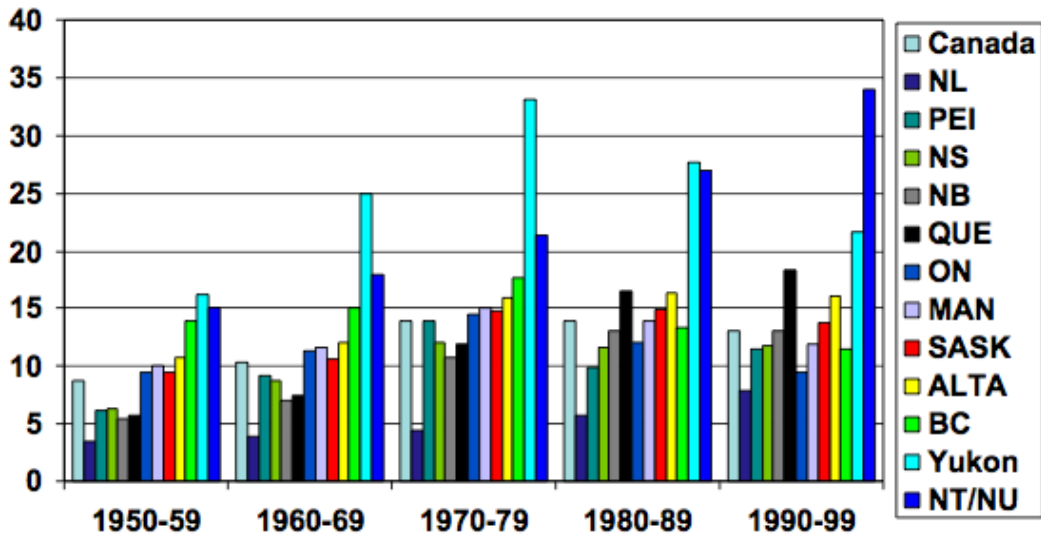


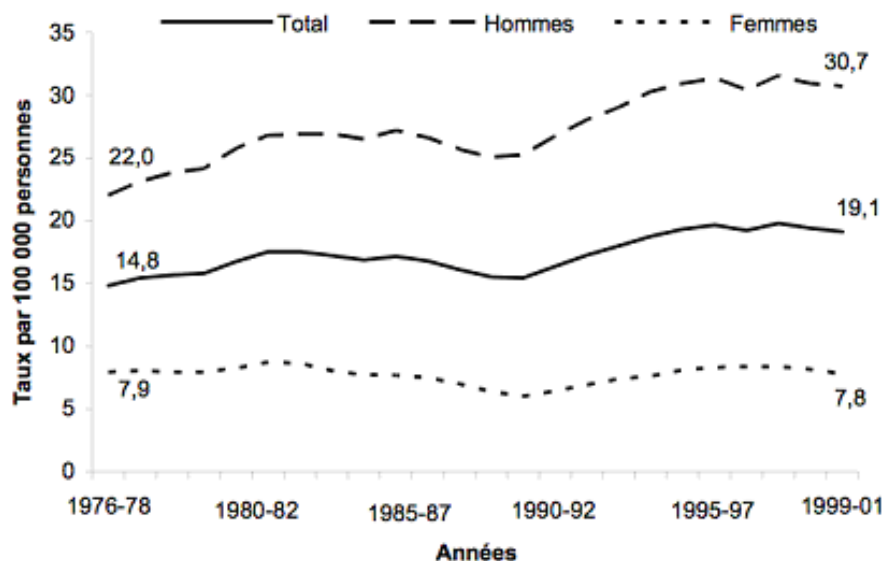
Fig 5. Suicide Rate in Canada by Province, 1950-1999



In the Province of Quebec youth suicide has also increased significantly in the past decades. The rate of suicide in Quebec increased from 14.8 per 100,000 in the 70s to 19.1 per 100,000 in 2001 (St-Laurent & Bouchard, 2004). Figures 6&7 show the suicide rate in Quebec by sex and compare it to the

rest of the world. The data was provided by the Quebec government and was kept in its original language (This is also the case for figures 6 and 7 and tables 5 and 6).

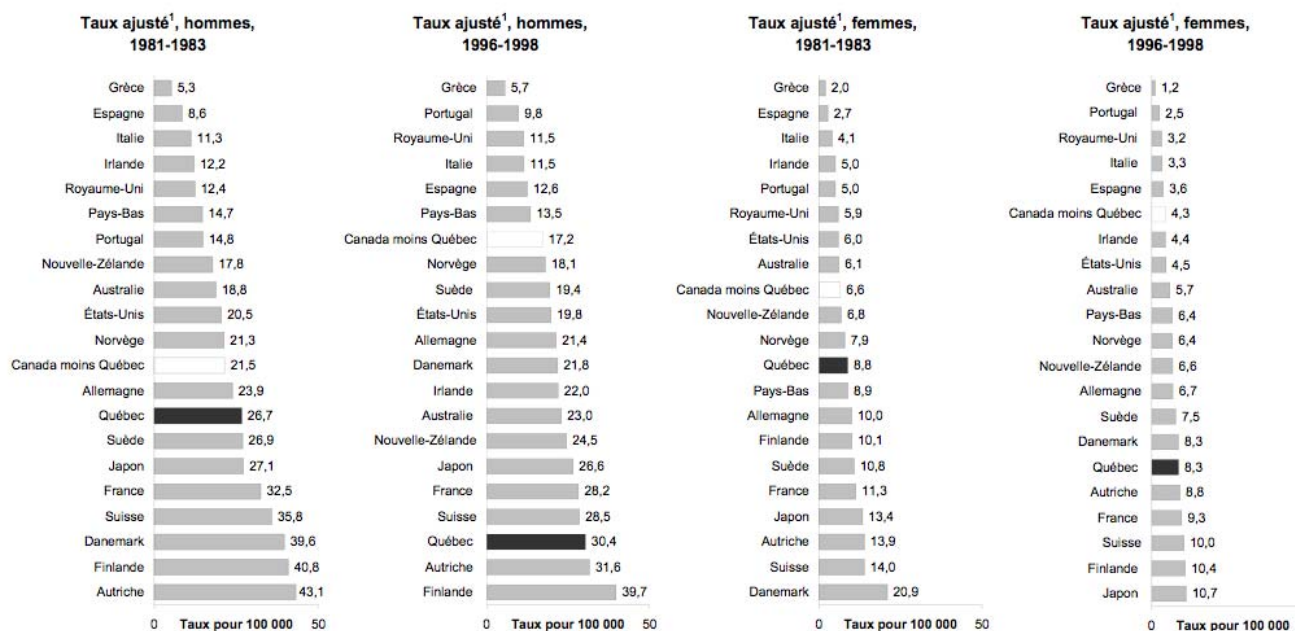
Fig 6. Rate of Death by Suicide by Sex in Quebec 1976-78 to 1999-01



Source : MSSS, Fichier des décès du Québec, calculs effectués à l'INSPQ, mars 2004.

Completed suicides among Quebecois adolescents increased from 19.8 to 30.9 per 100,000 for boys and from 2.9 to 8.5 per 100,000 for girls from 1980 to 1997 (Breton and Boyer, 2000).

Fig 7. The Rate of the Death by Suicide by Sex Quebec vs. the Rest of the World 1981-83 to 1996-98

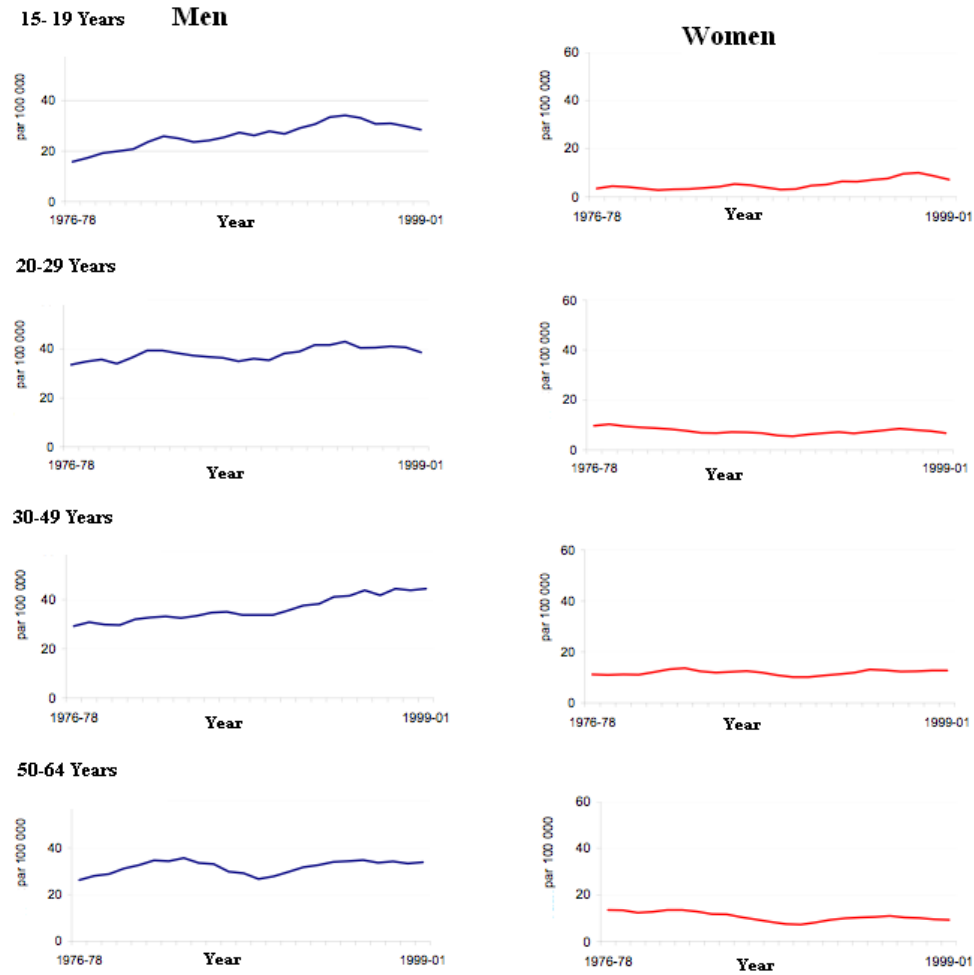


Source : Robert Choinière (2003). *La mortalité au Québec : une comparaison internationale*, Québec, INSPQ, p. 50.

In Quebec suicide is the second leading cause of death after car accidents for people aged 15 to 19. In 1997, Quebec had the second highest suicide rate (20.2 per 100,000) in industrial countries following Finland (22 per 100,000) (Rey, Michaud, Narring, and Ferron, 1997).

St-Laurent and Bouchard (2004) stated that in 2001, suicide was the cause of 3.8% of the deaths among males, and 1.0% among females in Quebec. For the Quebecois aged 15 to 19, the rate of death by suicide is 33% of total deaths in 2001, more than ten times the rate for the total population. The following figure demonstrates the age and gender distribution of death by suicide in Quebec.

Fig 8. The Age and Gender Distribution of Suicide in Quebec, 1976-78 to 1999-01



ii) Suicide Attempt

The Center for Disease Control (CDC) in the United States conducted the largest and the most representative study on youth suicide attempts in 2000 (Gould *et al.*, 2003). The Youth Risk Behavior Survey was based on a study done at different high schools on grade 9-12 students. The report showed that 19.3% of high school students had considered serious suicide attempts and that 15% had made a specific suicide plan during the past year. Of these students, 8.3% reported making suicide

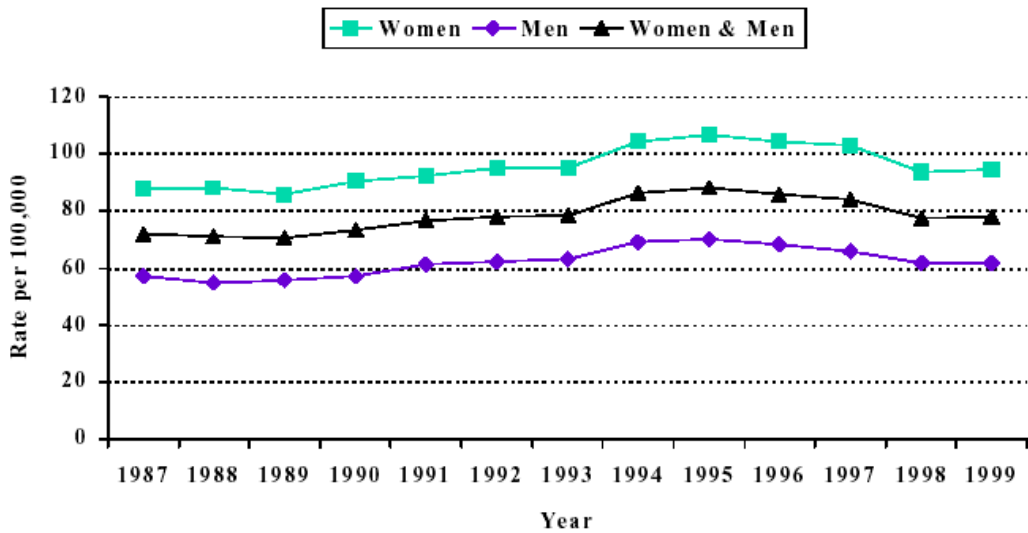
attempts and 2.6% were hospitalized due to the seriousness of the attempt (Gould *et al.*, 2003). According to this report suicide attempts peak between the ages of sixteen and eighteen, and its frequency declines as the adolescent enters adulthood. This decline is more evident for young women (Kessler, Borges & Walters, 1999; Lewinsohn, Rohde, Seeley, and Baldwin, 2001). Although completed suicide is more common among males, suicide attempts are more common among females (Lewinsohn, Rohde, Seeley, 1996; Wunderlich, Bornisch, Wittchen, and Carter, 2001). Table 4. shows the rate of youth suicide attempts reported by the CDC (2000) survey.

Table 4. The Rate of Suicide in Youth Grade 9-11 (percentage)

	Serious consideration	Specific plan	Suicide attempt
Male	13.7	10.9	5.7
Female	24.9	18.3	10.9

In Canada, the rate of suicide attempts between 1987 and 1999 peaked in 1995 for all ages. The following figures demonstrate that the rate of suicide attempts is the highest for age 15-24 for both genders.

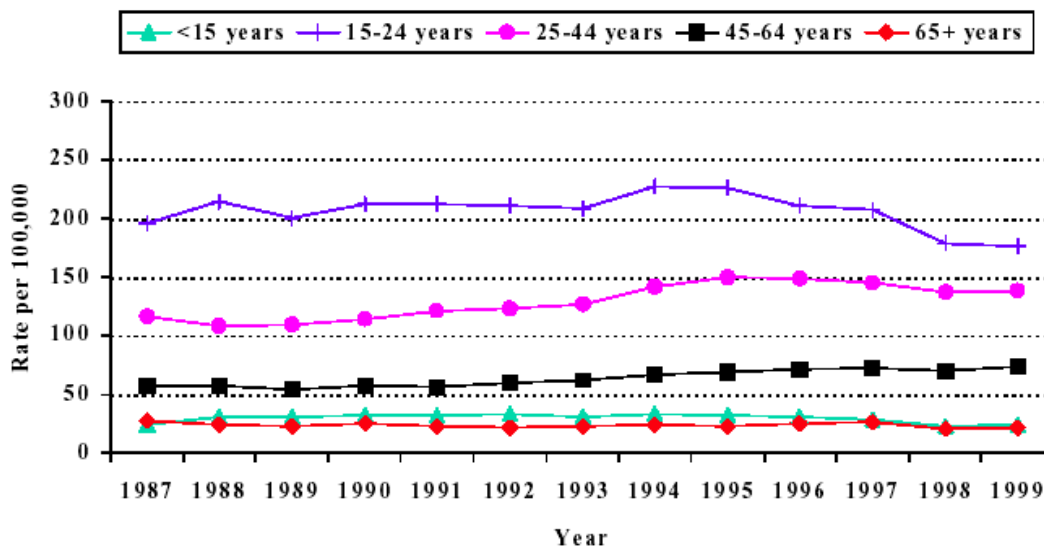
Fig 9. Rate of Hospitalization for Attempted Suicide in General Hospitals by Sex Canada 1987-1999



* Using most responsible diagnosis only

Source: Centre for Chronic Disease Prevention and Control, Health Canada using data from Hospital Morbidity File, Canadian Institute for Health Information

Fig 10. Rate of Hospitalization for Attempted Suicide in General Hospitals for Women by Age Canada, 1987- 1999



* Using most responsible diagnosis only

Source: Centre for Chronic Disease Prevention and Control, Health Canada using data from Hospital Morbidity File, Canadian Institute for Health Information

The prevalence of suicide attempts among young Quebecois (12-19 years old) varies from 3.5% to 11.7% (Breton & Boyer, 2000). Research indicates that girls are four times more likely to attempt suicide than boys are. According to the *Institut National de Santé Publique* (2004), although the rate of suicide attempts is hard to estimate precisely, the data on hospitalization suggests a higher rate of suicide attempts in females and in younger age groups (St-Laurent and Bouchard, 2004; *Enquête Sociale et de Santé*, 1998).

Table 5. Suicide Attempt in the Past 12 Months by Sex and Age 15 Years Old and Up, Quebec, 1998***

_ Par sexe et âge	pourcentage	ratio par 1000
Hommes		
15-24	0,9**	4
25-44	0,6**	6
45-64	0,4**	3
Total	0,5*	13
Femmes		
15-24	2,0**	9
25-44	0,4**	4
45-64	0,3**	2
Total	0,5*	15
Les deux sexes		
15-24	1,4*	13
25-44	0,5	10
45-64	0,3**	5
Total	0,5	28

* Coefficient de variation entre 15% et 25% ; interpréter avec prudence.

** Coefficient de variation > 25% ; estimation imprécise fournie à titre indicatif seulement.

Source : Institut de la statistique du Québec, *Enquête sociale et de santé 1998*.

iii) Suicidal Ideation

It is very difficult to measure suicidal ideation, and it is not easy to investigate this type of suicidal behavior in

the population. According to St-Laurent and Bouchard (2004), the statistics on the rate of this suicidal behavior is based on the number of hospitalization for suicidal thoughts, which is not a precise and reliable method to estimate the threat of suicidal ideation. The information on the number of individuals who have been hospitalized and the cause of their hospitalization is subject to error. It is very possible that suicidal ideation stays undetected just because the patient or the family did not want to admit to having those thoughts. The latest available data on prevalence of suicidal ideation in Quebec which was provide by *l'Enquête Sociale et De Santé de 1998* (St-Laurent and Bouchard, 2004) showed that young Quebecois aged 15 to 24, regardless of gender, had the highest rate of suicidal ideation compared to other age groups during the 12 months prior to the study. Table 6 shows the presence of suicidal ideation among 15 years old and up in Quebec.

St-Laurent and Bouchard (2004) indicated that 222,000 participants in the study had serious thoughts about suicide. Breton and Boyer (2000) indicated that the rate of suicidal ideation varies from 14.3% to 32.4% among adolescents 15-19 years of age. The high number of suicidal ideations among young Quebecois emphasizes the importance of establishing effective preventive programs targeted at this particular age group.

Table-6 Presence of Suicidal Ideation Among 15 Years Old and Up in Past 12 Months by Age and Sex, Quebec, 1998

Sexe	Age	Pourcentage	Ratio par 1000
Hommes			
	15-24 ans	6,3	31
	25-44 ans	4,5	53
	45-64 ans	2,7*	23
	65 ans et plus	0,5**	2
Total		3,9	109
Femmes			
	15-24 ans	8,5	40
	25-44 ans	4,0	46
	45-64 ans	2,9*	25
	65 ans et plus	0,5**	2
Total		3,9	113
Sexes réunis			
	15-24 ans	7,4	71
	25-44 ans	4,3	99
	45-64 ans	2,9	48
	65 ans et plus	0,5**	4
Total		3,9	222

* Coefficient de variation entre 15% et 25% ; interpréter avec prudence.

** Coefficient de variation > 25% ; estimation imprécise fournie à titre indicatif seulement.

Source : Institut de la statistique du Québec, Enquête sociale et de santé 1998.

Suicide and Gender

Suicidal behaviors vary between males and females. The behavior, the act, the method used, and the lethal outcome of suicide are different for males and females. For instance, Wunderlich et al. (2001) consider that being a female adolescent is a risk factor for suicide attempts since young girls attempt suicide more frequently than boys.

The Mental Health Institute in the United States (2001) indicated that women report more suicide attempts than men, with a female to male ratio of 3:1. However, more men than women, with a male to female ratio of 4:1, die as a result of

completed suicide. This male to female ratio for adolescents aged 15-19 is 5:1.

Globally, the rate of completed suicides among males is almost four times that of females across all ages and it also increases faster among males (Groholt, Ekeberg, Wichstrom, & Halsersen, 1997; World Health Organization report, 1998). The pattern of sex differences in suicide is related to psychopathologic factors and the method chosen to commit suicide. The method chosen for suicide varies between males and females. Men use more aggressive methods, such as gunshot, which have a higher risk of death compared to the less violent methods used by women (Beautrais, 2003; Shaffer and Hicks, 1994). Women prefer drug overdose and ingestion which has a higher rate of survival, whereas males more often use firearms and hanging as a method of committing suicide (Moscicki, 1995). Although overdose is a less lethal method for suicide, dying from overdose really depends on the ingestant and the level of medical treatment offered at the hospital. Shaffer and Hicks (1994) suggest that some ingestants are untreatable and that some countries, for example in South Asia and South Pacific, do not have well-developed treatment facilities to rescue the patient. These factors certainly affect the lethality of suicide attempts in different countries. As a result of less advanced medical facilities women who are more likely to use an overdose method die more than men.

Adolescence and Suicidal Behavior

Adolescence is an important transition period between childhood and adult maturity, which is characterized by significant transformations in all developmental aspects, including biological, psychological and social changes.

The biological process of puberty causes major morphological and physiological changes in adolescents, and rapid sexual transformation is the main characteristic, which differentiates this stage of life from earlier ones. Adolescence is also characterized by the development of new thinking strategies as well as self-representation. The final constructive outcome of these progresses is building an identity, which operates hand in hand with sexuality, interpersonal relationships, belief system and values.

At this stage the adolescents' relationships with their parents, who were usually the most important sources of support during childhood, becomes more distant and their friends and their significant others fill this gap. All of these changes followed by new preoccupations provoke new intense emotions.

As it was underlined by Compas (2004) individuals go through their adolescence in two ways. The majority of young individuals go through this developmental period successfully without facing significant psychological, social or physical problems. The second possibility is that the adolescent faces

an increase in incidence of mental health problems. Epidemiological studies on adolescents' mental health state show that 20% of adolescents will face a problematic development with difficulties, which seriously affect their relationships and their social lives. For example a study conducted on young Quebecois' mental health revealed that 12.7% to 19.1% of children and adolescents in Quebec suffer from at least one symptom of mental health problems (Villeneuve, Bérubé, Ouellet, Delorme, 1996). Other studies on presence of depressive symptoms in adolescents in the United States, Canada, and Germany indicated that 20% to 25% of these young individuals showed signs of significant psychological distress (Arnett, 2004).

The situations that might negatively affect the development of adolescents can be divided into four major categories: problems concerning sexuality and "unprotected sex" (including STD or unplanned pregnancies and abortion), substance abuse, delinquency and oppositional conducts, and suicide (Arnett, 2004; Lerner & Galambos, 1998). Adolescent suicide is a major public health concern, particularly in Quebec, which has one of the highest rates in the world (*Institut National de Santé Publique, 2004*).

Why do some individuals take a wrong turn and get involved in problematic lifestyle? When do the changes toward adult maturity affect them and when do these changes lead to stress and distress and interfere with the process of development?

These are the questions that nourish the contemporary thoughts on vulnerability and protective factors as well as resilience in adolescent's suicidal behavior (Compas, 2004).

Many attempts in past decades have focused on finding an answer to why some adolescents develop a healthy and productive life and some others become self-destructive. Different protective factors have been suggested as being beneficial to a successful passage to adulthood and some risk factors have been found to be possible causes to a troubled life pattern in adulthood.

Some studies (Blum & Nelson-Mmari, 2004) conducted in different countries indicated that certain universal factors, including quality of parental affection, consistent parental control, academic engagements and self-esteem protect adolescents from socially deviant behaviors. On the other hand, being involved with deviant friends and frequent family conflicts constantly put the adolescents at risk for an unsuccessful adulthood life (Barrera and Li, 1996; Blum & Nelson-Mmari, 2004; Cummings & Cicchetti, 1990).

Theories of Youth Suicidality

In past decades many attempts have been made to explain suicidal behavior and the reasons behind the increased incidence of this type of behavior in adolescents. For example Cutler, Glaeser, & Norenberg (2001) investigated the reasons behind adolescent suicidal behavior and have come up with

different explanations. Their first explanation is "*strategic suicide*", in which unhappy suicidal adolescents try to signal to other people that they suffer from unhappiness or want to punish others for it. The assumption here is that the strategic suicidal adolescent does not see death as the outcome of his or her suicide attempt and does not intend to complete the act of suicide. According to this explanation, the suicide attempt is a way for suicidal adolescents to communicate with their parents, and signal to them their true unhappiness, and a way of trying to convince the parents to pay more attention to them and contribute more of their resources to them. Sometimes parents' attitudes toward their children make the young individual believe that self-harm is the only way to punish their parents and get their attention.

Cutler and colleagues' (2001) second explanation for youth suicide is "*contagion theory*". This theory assumes that adolescents imitate the suicidal behavior of others. Gould (1994) also demonstrated that suicide is more contagious during adolescence compared to older populations. Different factors play a role in the contagiousness of suicide at this age, among them stress and grief caused by a friend's suicide. Adolescents do not have enough experience in dealing with different emotions and when they are faced with the loss of a friend to suicide; they may think that suicide is a relief from this stressful situation. In addition, the attention that the family and friends of the person who committed suicide

give to the victim's death misguides other young individuals and makes them see the suicide attempt as an attention seeking behavior.

The third explanation of youth suicide proposed by Cutler and colleagues' (2001) focuses on instrumentality. This concept implies that suicide is an impulsive act and higher access to lethal means leads to higher rates of suicide. The availability of firearms at home, particularly a loaded gun, has been linked to respectively four and thirty-two times higher rates of suicide.

Suicidality: Different Scientific Approaches

The science of suicidology has emerged from different aspects of suicidal behavior and applies to different domains including, psychiatry, sociology, and law (Maris and Silverman, 2000). Although the study of suicidal behavior has roots in these three different sciences, each one of them has a distinct theory to explain this type of behavior.

Sociological Approach

In 1897, Emile Durkheim introduced the most popular social approach to explaining suicidal behavior. He suggested that suicide is a social phenomenon (Durkheim, 1897) and classified it under four major types: egoistic, altruistic, anomic, and fatalistic. Durkheim believed that poor social integration characterizes *egoistic* suicide and those individuals with less religious beliefs or family unity, solidarity and integrity are most probably the ones who commit

egoistic suicide. Durkheim suggested that within societies, belonging to religious, marital, familial, and political groups can help individuals better integrate into society and prevent them from committing suicide (Durkheim, 1897). He even developed a statistical method called "coefficient of preservation" to demonstrate how the rate of suicide is lower in people who belong to the above groups.

The second type of suicide proposed by Durkheim (1897) was *altruistic* suicide, which is opposite to egoistic suicide and it is due to individuals' extreme attachment to the society. These individuals commit suicide because they believe their death is beneficial to the society.

The third category suggested by Durkheim is *anomic* suicide. He strongly believed that "any disturbance of equilibrium in life even though it achieved greater comfort of general vitality, is an impulse to voluntary death" (Durkheim, 1897). Thus, he suggested that interruption in regularities of the society (which he defined as *anomie*) both in economic and domestic terms can result in self-inflicted death or anomic suicide in some individuals (Durkheim, 1897).

Durkheim (1897) also specified a fourth called *fatalistic* suicide. This type of suicide is opposite to anomic suicide and occurs when there is too much control and excessive social regulations in an individual's life.

Overall the sociological approach to explaining suicidal behavior emphasizes on "social integration" as a protective

factor against suicide and promotes avoiding any interruption in social regulation to minimize the risk of suicide.

Biological Approach

The biological approach to explaining suicidal behavior is based on genetics and the neurobiological causes of this type of behavior. Studies indicate that suicidal individuals have a higher rate of suicidal behavior in their families (Brent and Mann, 2005; Brent *et al.*, 2003; Roy, 2004). Researchers (Roy & Segal, 2001; Voracek & Liobel, 2007) have investigated the suicidal behavior in both monozygotic and dizygotic twins. Their findings confirm that a higher rate of suicidal behavior occurs in monozygotic than dizygotic twins. Additionally, Brent and Melhem (2008) compared two groups of adopted individuals with and without a history of suicidal behavior and concluded **that** the biological parents of those adopted individuals with prior suicidal behavior had a higher rate of suicide than the ones without prior suicidal behavior.

In recent years, many efforts have been made to investigate the possibility of a biological pre-disposition to suicidality. Researchers have attempted to identify genetic and neurobiological components of suicidal behaviors (Arango, Huang, Underwood, 2003; Bondy & Buettner & Zill, 2006; Courtet, Picot, Bellivier, 2004; Souery, Oswald, Linkowski, Mendlewicz, 2003). These studies have concluded that some genes involved in regulating the level of the neurotransmitter serotonin are related to suicidal behavior in humans (Bondy &

Buettner & Zill; 2006). In their studies, Arango *et al.* (2003; Arango, Underwood, Gubbi, and Mann, 1995) argued that a malfunction of the brain's serotonergic system is associated with suicidality. Indeed, low functioning of the serotonergic system is associated with more aggressive and impulsive acts as well as lethal suicidal behaviors (Arango *et al.*, 2003). Another system, which researchers suggest is involved in suicidal behavior, is the noradrenergic system. The noradrenergic system may be involved in suicide through the excessive stress experienced by a person prior to suicide.

A more recent biological explanation for suicidal behavior indicates that there is a relationship between the level of serum cholesterol and suicidality. Researchers (Kim & Myint, 2004; Lester, 2002; Mushtaq, 2004) suggest that a low level of serum cholesterol is associated with suicidal behavior specifically in depressed individuals.

All the above studies confirm the important role that biological factors play in the etiology of suicide. The recent studies on behavioral genetics indicate that biological factors work in an interactive manner with the environmental factors. The biological deficits create individual vulnerability only in the presence of negative life events (Collins, Maccoby, Steinberg, Hetherington & Bornstein, 2000; Kendler, Hettema, Butera, Gardner, & Prescott, 2003; Rutter, Moffitt & Caspi, 2006).

Psychopathological Approach

Suicidality is not a psychiatric diagnosis but is associated with many psychiatric disorders (Fleishmann, Bertolote, Belfer, and Beautrais, 2005; Tuisku, *et al.*, 2006; Wilson, Fertuck, Kwitel, Stanley, and Stanley, 2006). Studies on psychological autopsies of suicide victims conclude that in 50 to 90% of cases, a type of psychiatric disorder such as an axis I disorder, particularly depression, was present in the victim's mental health history (Beautrais, Joyce, and Mulder, 1996; Ernst *et al.*, 2004; Hawton, Houston, and Shepperd, 1993, Shaffer, 1998; Schneider, 2006; Weinberg, Rahdert, Colliver, and Glantz, 1998).

Axis I: Depression and Suicidality

Among the axis I psychiatric disorders, depression is one of the major predictors of suicidal behavior disregarding the individual's age and gender (Wild, fisher, & Lombaard, 2004; Beautrais, 2000; Bronisch, 2003; Fergusson, Beatrais, & Horwood, 2003). Apter and King (2006) suggest that depressive episodes are among the strongest predictors of suicidal behavior in young individuals. Nrugham, Larsson, and Sund (2008) also emphasized the importance of recognizing depressive disorders as major factors in adolescents' suicidal behavior. Mood disorders are the most common disorders associated with suicide. For example, 20 to 50 percent of bipolar patients, under stressful circumstances, attempt

suicide at least once in their lives (Jamison, 2000). Research demonstrates that being diagnosed with major depression is associated with a higher rate of suicidal behavior compared to other types of psychiatric disorders (Weller, Young, Rohbaugh, & Weller, 2001). Depression plays an important role in suicide at all ages, the later the on-set of the depression, the higher the risk of suicide (Angust, Angust, & Stassen, 1999). The severity of the depression, feeling of hopelessness, the existence of previous suicidal ideation or attempts, and previous outbreaks of depressive symptoms, along with other social factors, trigger suicide in the psychiatric population (Brent *et al.*, 1994; Brown, Beck, Steer, & Grisham, 2000).

Other axis I psychiatric disorders such as Schizophrenia (Lewine, 2005; Meltzer & Fatemi, 1995; Mortensen, 1995) and Anxiety (Hendin, Hass, Maltsberger, Szanto, & Rabionwicz, 2004; Verona, Sachs-Ericsson, & Joiner, 2004) are also risk factors for suicide.

Axis II: psychiatric disorders and suicide

Some psychiatric disorders categorized under axis II in the DSM IV, particularly personality disorders, are also associated with a higher rate of suicidal behavior. Studies (Howton and Sinclair, 2003) suggest that certain personality characteristics such as aggression, impulsivity and poor problem solving elevate the risk of suicidal behaviors.

Certain characteristics of adolescents who suffer from personality disorders make them more likely to engage in suicidal behaviors. Among these characteristics are impulsiveness (Brent, 1993; Paris, 2005), aggression (Brent *et al.*, 1993b; Dolan, Deakin, Roberts, and Anderson, 2002; Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001), dysphoria (Soloff, Lis, Kelly, Cornelius, and Ulrich, 1994; Zittel Conklin and Westen, 2005), hopelessness (Keinhorst, DeWild, Diekstar, and Wolters, 1995; Pompili, Ruberto, Girardi, Tatareli, 2004), sensation seeking (Zuckerman, 1996) and risk taking behaviors (Brent *et al.*, 1993).

In general, knowing the psychopathology of suicidal behavior is very important specifically during adolescence because some psychiatric disorders have their onset during this period. In terms of the different scientific approaches to explaining suicidal behavior it appears that suicide is a complex problem with its origins found in the social world as well as in biological deficits and psychological vulnerabilities. Suicidal behavior cannot be explained exclusively by one scientific discipline. Psychology covers the individual's emotional and mental vulnerability factors, social sciences focus on large environmental risk factors and the social context, and the biological sciences highlight the physical aspects and the brain mechanisms involved in suicidal behavior. Only a theoretical perspective, which takes all

three approaches into consideration, may give a complete understanding of suicidal behavior.

Risk Factors for Adolescent Suicidal Behavior

The factors that contribute to adolescent suicidality are categorized into two groups: internal and external. The internal factors depend on an individual's state of mental and physical health and personal and hereditary characteristics. Apart from individual factors, social and external factors also contribute to youth suicidality. Family factors are the core of the external factors. Many researchers agree that the poor quality of the parental bonds with adolescents considered as the most important risk factor for youth suicidal behavior (Bastien, Tousignant, Hamel 1996; Diamond, 2005; Fotti, Katz, Garland and Zigler, 1993; Fotti, Katz, Afifi & Cox, 2006; Liu, 2006; Ross 1979; Spirito, Brown, Overholser, Fritz, 1989).

Parental Practices and Suicidal Behavior

In their attempt to identify the triggers for suicidal behavior in adolescents, researchers agree that the family environment is the first place to focus on (Hair *et al.*, 2005; Hawton, 1986; Resnick, Ireland, Borowsky, 2004; Walker, 1990). According to these studies in crises and stressful situations, adolescents who came from any kind of dysfunctional families are more prone to suicidal behavior. Frequent disturbances in family functioning put young individuals at a higher risk of demonstrating such behavior.

Kuh *et al.* (2002) and Maccoby (2000) suggested that the quality of parenting, both what is done (parental practices) and how it is done (parenting style), is one of the factors that determines the level of young individuals' adjustment to the family environment. The quality of parental practices and style has a direct effect on how the adolescents perceive the world around them (De Man, Leduc, Labreche-Gauthier, 1993).

Parent and adolescent's relationship

Many contemporary works, which are devoted to the study of the family interactions and the effects carried by those interactions on adolescent development, are focused on the study of parental practices. Goodnow (1995) defined parental practices as a series of recurring activities that are used commonly by people within the same social group, which is invested by normative meaning. Therefore parental practices are socially driven procedures which state, "what is right" as parental duties to insure that children are guided toward developing a healthy adulthood and teach them accepted values. Parental practices are directed toward long-term goals which let the parents exercise their parental rights in different aspects of their children's lives and encourage them toward goals such as academic achievement (Darling & Steinberg, 1993). These practices are repeated over time and acquire normative value; they shape the family standards and environment, and may promote social skills and facilitate the process of the children's developmental changes.

Most of the studies on parental practices are focused on two dimensions of the parent-adolescent relationship: attachment and control (Baumrind, 1975; Conner and Rueter, 2006; Fergusson, Woodward, and Horwood, 2000; Lewinsohn et al., 2001; King et al., 2001; Maccoby and Martin, 1983; Schaeffer, 1965; Sears, Maccoby, & Levin, 1957). Attachment concerns the quality of the parent-adolescent relationship has in terms of affection, warmth, closeness, emotional bonding, communication and support. The control dimension refers to the active role parents assume in developing their offspring's interpersonal skills and socially adaptive competencies (Grootevant, 1998). This pertains to establishing requirements, setting rules, and agreeing upon limits. It also relates to enforcing penalties when limits are crossed and rules are not respected. Control also includes supervision, which permits parents to be reasonably aware of their adolescent's whereabouts and daily activities (Dishion, MacMahon, 1998; Paterson, Stouthamer-Loeber, 1984).

i) Attachment and emotional bonding

Attachment is a multi-dimensional, everlasting emotional bond between a child and his or her parents or primary caregiver that provides comfort and security to the child (Bowlby, 1980; Ainsworth, 1989). The quality of the attachment and the way parents bond to children affects psychological and physical health for the rest of the individual's life. Numerous studies confirmed Bowlby's suggestion that the quality of

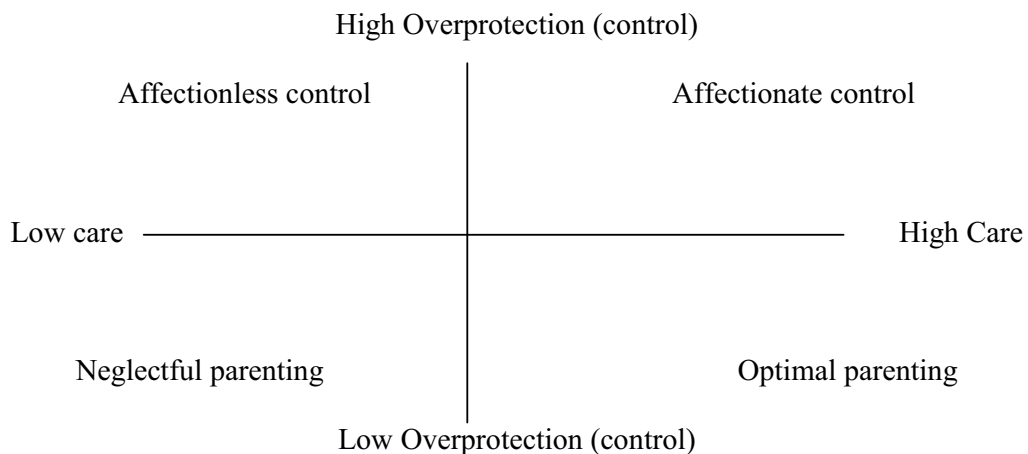
attachment and relationship between parent or caregiver and child has various lifetime lasting impacts on his or her psychological well-being (Ainsworth, 1989; Armsden & Greenberg, 1987; Garnefski & Diekestra, 1997; Thompson, 2000; Weitoft, Hjern, Haglund, Rosen, 2003; Sauvola *et al.*, 2001; Woodward, 2000)

Adolescence is a crucial life stage because of the rapid physical, mental, and social changes occurring (Steinberg, 1996). A proper emotional bonding with and attachment to parents providing warmth and affection gives the adolescents the opportunity to take steps towards communicating with parents and talking to them about the changes they are going through. This helps the adolescent to cope better and feel more comfortable when facing new challenges (Torquati and Vazsonyi, 1999). A series of studies confirmed that a problematic emotional bond in form of insecure attachment, parental rejection, severe conflicts or hostility create psychological problems later in life (Allen, Moore, Kuperminc, & Bell, 1998; Armsden & Greenberg, 1987; Lessard & Moretti, 1998; Rohner, 2006; Warren *et al.*, 1997; Woodward, Fergusson, & Belsky, 2000).

Attachment between parent and child has different components. The ones having the most impact on adolescents' life being the parents' warmth, closeness, affection, care, support and acceptance (Parker, Tupling, & Brown, 1979). Parker *et al.* (1979) developed their parental bonding instrument (PBI)

based on the following dimensions: care, affection, sensitivity, accessibility, rejection, interference, control, overprotection, and encouragement of autonomy and independence. Factorial analyses indicated that the Parental Bonding Instrument focuses on two main characteristics: over-protection (control) and care. The following figure demonstrates Parker and his colleagues' approach to parent and child bonding.

Fig 11. Child's Attachment Model (Parker et al, 1979)



According to Parker, there are four possible quadrants in parental bonding instrument. The parental behavior, based on the level of parental care and control of their children, may fall into one of these categories: affectionate control (high control, high care), affectionless control (high control, low care), Optimal parenting (high care, low control), and neglectful parenting (low care, low control). Researchers (Enns, Cox, and Clara, 2002; Hardt, Egle, and Johnson, 2007; Martin & Waite, 1994) with the use of PBI concluded that

parental practices with lack of affection, specifically combined with affectionless control, are associated with many psychiatric disorders as well as suicide in young individuals.

Martin & Waite (1994) also suggest that affectionless control doubles the chance of suicidal thoughts, triples the risk of deliberate self-harm, and quintuples the risk of depression among adolescents. Tobin (2000) investigated suicidal behavior among adolescents who were admitted for psychiatric hospitalization following a serious suicidal attempt and their parents or primary care givers. He concludes that for both parents and adolescents, a negative global perception of family relationships and disturbed family functioning are associated with children's suicidal behavior.

Suicidal adolescents perceive their families as less caring, more overprotective, and more rigid than non-suicidal adolescents (Miller, King, Shain, Naylor, 1992). Hollis (1996) and Wagner (1994) studied the influence of parent and child bonding difficulties on the risk of adolescents' suicidal behavior and demonstrated that a disturbed mother and child relationship, and lack of warmth, especially maternal warmth, is associated with suicidal behavior in young individuals. Lack of closeness (Tobin, 2000), lack of parental attention (Bastien *et al.*, 1996), and poor parental care, especially father's care toward girls (Adam, 1994; Tousignant, Bastien, & Hamel, 1993) are other aspects of disturbed relationships between parents and their suicidal adolescents. Other studies (Bastien *et al.*,

1996; Tousignant *et al.*, 1994) have also found that poor parental care, specifically poor paternal care, is highly associated with suicidal ideation.

Groholt, Ekeberg, Wichstrom, and Haldorsen (1997) and Steinhausen (1993), emphasize the importance of parental care and claimed that the very low rate of suicide in childhood (between ages 7-10) is a result of a warmer relationship between parents and child.

On the other hand Main and Hess (1990) used a different terminology to explain parent and child attachment, which is also used to classify suicidal adolescents in regard to attachment to their parents. Their theory was influenced by Bowlby's theory of attachment and suggested that early in life, during periods of "vital dependency", any kind of loss or separation from the parents or attachment figure may result in the development of a disorganized or disoriented attachment in individuals. This kind of attachment is characterized by unusual and contradictory behaviors such as attention seeking through avoidance especially when the parents are present, in addition to many other odd behaviors due to unresolved attachment trauma caused by separation from the parents earlier in their life (Main & Solomon, 1986). Disorganized or disoriented patterns were found in high number among maltreated children (Carlson, Cicchetti, Barnett, & Braunwald *et al.*, 1989).

Studies of suicidal and at risk adolescents (Adam, Sheldon-keller, and West, 1996; Lessard & Morreti, 1998) revealed that fearful of intimacy due to fear of rejection and preoccupied with close relationship as well as unresolved-disorganized (unable to maintain coherent discourse when discussing traumatic experiences) attachment pattern are associated with suicidal behavior.

In their study, Lessard and Morreti (1998) claimed that among adolescents, severity of suicidal ideation is positively correlated with a fearful attachment pattern and negatively correlated with a secure and dismissing pattern. The degree of lethality of the suicide method was found positively correlated with a preoccupied pattern of attachment.

In their study of 69 suicidal adolescents Adam *et al.* (1996) concluded that 86% of the participant had experienced attachment-related trauma. They also found that preoccupied attachment pattern in presence of unresolved- disorganized attachment was highly represented in the suicidal group. These adolescents were preoccupied with close relationships and overly dependent on others for self-esteem and support.

Suicidal teenagers suffer from a low family support. Studies (Asarnow & Carlson, 1988; Bridge, Goldstein, and Brent, 2006; Pronovost, Rousseau, Simard, and Couture, 1995; Toumbourou and Gregg, 2002) have investigated the importance of parental support in adolescents' quality of life and confirmed

that this dimension is perceived more negatively in suicidal adolescents compared to non-suicidal ones.

Overall, parenting styles including affection, warmth, reasonability, fairness, and supportiveness create a healthy context for adolescents to become well adjusted to significant changes and feel more secure (Dukes & Lorch, 1989; Steinberg, 2001).

ii) Psychological and behavioral control

Some researchers (Hiellig, 1983; Pfeffer, 1981; Rosenbaum & Richman, 1970) believe that suicidal adolescents have a symbiotic relationship with at least one parent, usually their mother, which interferes with the development of their independence and autonomy. Studies (Barber; 1992, 1996, 2002) have also shown that both the amount and the quality of parental control contribute to youth suicidality. Barber (1992) categorizes parental control into two different types, behavioral and psychological. He defines behavioral control as a sufficient regulation of behavior, such that children learn that social interaction is governed by rules and structures that must be recognized and adhered to in order to be a competent member of society. Psychological control is an intrusive form of parental control which interferes with the personal and intimate life of the adolescent, limits his or her individual freedom and constantly dictates him or her how to think and act (Barber, 1992, 2002). As Barber demonstrated in his studies, this type of control has a negative impact on

parent and child relationship as well as adolescents' mental health (Barber, 2002).

According to Barber's model, the problematic behaviors of adolescents are the result of an inadequate balance between psychological and behavioral controls used by the parents.

Barber (1996) states that children need to be free from psychological control up to a certain degree in order to have a healthy development as a separate individual and a flourishing personal identity. At the same time, he emphasizes the need for a sufficient amount of behavioral control in order to teach children society's rules and how to respect other people's rights. Any interference with these learning processes can lead to developmental and behavioral problems later in an individual's life. Barber (1993) suggests that although a certain amount of psychological control is necessary for healthy development, a higher level of parental psychological control results in internalized problems such as loneliness, confusion, and depression, which could eventually lead to suicidal behavior.

Houser (1991) suggests that parental psychological control through behaviors such as devaluation, judging, and showing indifference disturb a child's development of individuality and undermines his or her participation in family interaction. Other researchers (Adam 1995; Allison, Pearce, Martin, Miller, and Long, 1995; Carris 1998; DeMan, 1988, 1993; Yamaguchi et al., 2000) have also demonstrated that higher psychological

control and its extensions such as overprotection, and family rigidity (low parental tolerance toward adolescents' sense of individuality and decision-making), are among the primary family characteristics of suicidal adolescents.

iii) Parent and adolescent conflict

Conflict in any relationship, including parent and child, by itself is not necessarily bad: in fact conflicts keep the relationship alive and are sign that all the people involved keep their individuality (Steinberg, 1990). A healthy conflict leads to positive changes in a relationship and an unhealthy one has a negative effect on both parents and child. As Burt, Robert, Kruger, Mcgue, and Iacono (2003) indicated parent and child conflict is a vulnerability factor that increases the risk of multiple childhood mental disorders.

The majority of parents and adolescents experience conflict at one point in their lives (Reisch *et al.*, 2000). Sometimes frequent and intense conflicts can interrupt a healthy interaction between parents and adolescents. Family environment and the quality of parent and child interaction are good predictors of healthy or unhealthy outcome of the conflictive situations. Many theoretical attempts have been made to explain the increased conflict between parent and adolescents. For example, adolescents' psychological disorders (Burt *et al.*, 2003) such as Attention Deficit Disorder (ADD), Conduct Disorder (CD), and Oppositional Defiant Disorder (ODD) are associated with parent-adolescent conflict. Cognitive

development and intellectual maturation (Rubenstein & Feldman, 1993; Steinberg, 1981, 1990) as well as a new concept of self and relationships, especially with parents, make adolescents seek equality with parents and parents' hesitation to meet the child's new demands leads to more conflict.

There is evidence that suicidal adolescents have a higher rate of conflict with their parents (Johnson, Wise, & Smith, 2000). An unsatisfactory relationship with a parent is among the family factors, which place children at a higher risk of suicidal behaviors. Unresolved family conflicts (Asarnow, Carlson, and Guthrie, 1987; Hawton *et al.*, 1982; Keinhoust *et al.*, 1992; Monero, Cisler, and Lemerond, 1993) especially with the father (Hindmarsh, 1990; Schwartz, Kaslow, Seeley, & Lewinsohn, 2000; Samy, 1995; Tobin, 2000) are among the significant predictors of adolescents' suicidal ideation. Ho & Hung (1998) suggested that parent-child conflict at extreme level leads to suicidal behaviors through child abuse. Wagner (2003) studied 82 adolescents who had attempted suicide and found that those who had more conflicts with parents, especially their fathers, were more prone to reattempt.

Lewinsohn, Rohde, and Seeley (1995) studied the link between parent-child conflict and suicidal behavior. They concluded that adolescents with suicidal behavior reported a higher level of conflict with their parents. Other studies Shagle and Barber (1995) and McKenry, Tishler, and Kelley (1982) also showed that adolescents with suicidal tendencies

often have more conflicted relationships with their parents. They observed that 52% of the adolescents who participated in their study complained about problems with their parents and were not satisfied with their family relationship.

A Meta analysis study on parent and child conflicts by Laursen and Collins (1998) suggested that the frequency of conflicts decreases as the adolescents move from early to mid and late adolescence but the emotional impact of conflicts increases. As it was highlighted by Laursen & Collins (1994) the emotional impact of conflicts plays a major role in development because the degree of frustration, anger, and injustice leaves a bigger scar on individual's development than the frequency of conflicts.

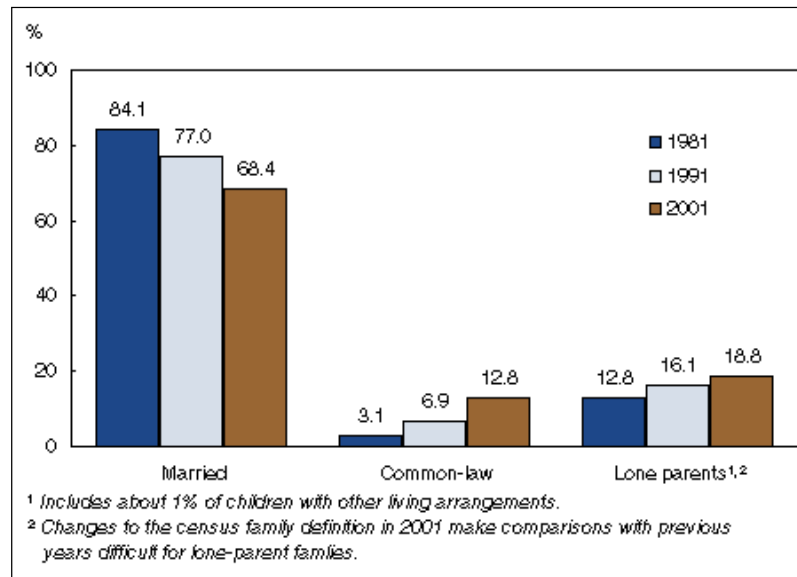
Stewart, Lam, Betson, and Chung (1999) studied 996 adolescents and concluded that a high level of conflict between parents and daughters increased the level of suicidal behaviors. Other researchers (Allison& Schultz, 2004; Smetana, Metzger, Campione-Barr, 2004) also suggested that the mother-daughter dyad is the most conflictive relationship and confirmed that adolescent girls have more conflict with their parents than boys do.

Family structure and suicidal behaviors

Family structure plays an important role in an adolescent's life. In today's society, marital instability is a very common phenomenon. An increase in separation and divorce has touched the life of many couples all over the

world regardless of culture (Nugman, 2002). In industrial countries such as Canada, the rate of divorce is growing rapidly. The data provided by Statistics Canada indicate that the total divorce rate by couples' 30th anniversary in Canada was 37.6 per 100 marriages in the year 2002 (Statistics Canada). The following figure shows a decrease in number of married couples as well as an increase in number of non-married couples between 1981 and 2001.

Fig 12. Children Family Structure Census Canada 2001



The family dynamics play an important role in how children cope with the parental divorce or separation in their lives. Children respond differently to their parents' divorce or separation and their responses mainly depend the level on conflict between the two parents, and parent- child interaction. The quality of the adjustment to their new

status, for both parents and children, is very dependent on these two factors.

Numerous studies indicated that a higher rate of suicide exists among children and adolescents coming from non-intact families. (Garnofski & Diekstra, 1997; Gould *et al.*, 2003; 2005; Tousignant *et al.*, 1993; Weitoft *et al.*, 2003). Ponnet *et al.*, (2005) suggest that parents' marital status is an important variable that should be strongly considered in any assessment concerning risk factors for adolescent suicide.

Socio-economic status and suicidal behaviors in adolescence

Research has established a link between parents' socio-economic status and suicidal behavior in adolescents. Groholt *et al* (2002) demonstrated that parents' low socio-economic status is associated with a higher risk of suicidal behavior in adolescents. Agerbo, Nordentoft, and Mortensen (2002) also found that low income was among the factors that were associated with an elevated risk of suicide in adolescents.

Summary and Hypothesis

This project is designed to investigate the link between different aspects of the parent-adolescent's relationship and suicidal behavior in youth. The objective of this project is to examine diverse family characteristics of Quebec suicidal adolescents and examine any possible patterns of parental practices related to two types of suicidal behavior, attempts and ideations.

Suicidal behavior in industrial countries has grown rapidly in recent years, and the first objective of this chapter was to determine a clear and precise definition of the terms that guide the present study: "suicide attempt and ideation".

Recently published international, Canadian, and Quebec epidemiological data on youth suicidal behavior was provided in order to highlight the depth of this major health concern all over the world. These reports indicated that Canada was no exception to the rest of the industrial countries in terms of adolescent suicide and that Quebec particularly was ranked as having one of the highest rates of youth suicide in the world.

After examining the principles of adolescents' developmental process and analyzing the risk factors for suicide in this period of life, the project attempted to investigate the causes that drive an adolescent towards engaging in this type of behaviors. This section also examined different theories of suicide including sociological, biological and psychopathological.

The next focus of the section was to explore the studies on risk factors for adolescents' suicide as well as parent-child relationship and examine both protective and risk factors considering three general dimensions: emotional bonding, control, and conflict between parent and child. The association between these factors and adolescents' suicidal behavior was followed by a presentation of different studies.

The final aim of the section was to introduce the concept of parents' marital status and present some studies on this topic, which suggests that this factor should be considered as a contributor to youth suicide.

The present study proposes the following group of hypotheses concerning different characteristics of parental practices (as perceived by adolescents) and their possible links to an increased risk of suicidal behavior in adolescents:

1. Emotional bonding: The first hypothesis is that a low level of parent-child emotional bonding and affection and a higher feeling of rejection by the adolescents will be associated with an increased risk of suicidal behavior in adolescence.

2. Control: A low level of behavioral control and a high level of parental psychological control perceived by adolescents as well as a low level of parental tolerance towards friends will be associated with elevated risk of suicidal behavior in adolescents.

3. Conflicts: A high frequency of parent-child conflict and a high level of negative emotional impact of those conflicts on the adolescents will be associated with youth suicidal behavior.

4. Family Structure: The fourth hypothesis is about the impact of family structure on adolescents' suicide. The hypothesis is that adolescents from non-intact families have a

more elevated rate of suicide behavior than those who live in intact families.

5. Gender: The literature has clearly indicated that female adolescents have a higher rate of suicidal thoughts and attempts compared to male adolescents. So the fifth hypothesis is that a higher rate of suicidal ideations and suicide attempts will be found in girls.

This project also investigates some socio-demographic aspects of suicidal behavior in adolescents such as parents' education, and socio-economic status. The controversial results of the previous studies conducted on the association between parents' education and socio-economic status and risk of adolescent's suicidal behavior inspired this study to examine the possible links between these factors.

Chapter 2

Methods

In this section, the participants of the study and the instruments used to measure different aspects of suicidal behavior in adolescents, including psychological distress and parental practices, will be examined.

Participants

The participants of this study were 1256 Québec High School students grade 1 to 3 from two different French speaking high schools in Montreal, Canada of whom 609 (48.5%) were boys and 647 (51.5%) were girls.

Table 7 Number of Participant by Grade and Gender in Schools A and B

	School A	School B	Total
Sec I	190	239	329
Sec II	141	266	407
Sec III	146	274	420
Total	477	779	1256
Male	241	368	609
Female	236	411	647
Total	477	779	1256

School A was located on the west side of the Montreal Island. The majority of the students came from middle-class families, but since the school serves a large geographic area it also has clientele from different social status, i.e. adolescents from low-income families. School A had a total number of 1742 students of whom 905 were boys and 837 were

girls. There were 307 students assigned to special classes based on both academic and behavioral difficulties. School A was characterized as multi-ethnic with 36% of the students born outside of Canada. The school had 8 "*classes d'accueil*" ("Welcome Classes") for the new students who did not speak French at all, which represented 9% of its clientele. School A also had a higher rate of failure on third yearly report card for boys with $n=74$ compare to the girls $n=40$.

School B was located on the South Shore located south of Montreal Island. The socio-economic status of the families in this area is higher than in the area where school A was located. School B was less multi-ethnic than school A with only 7% of the students born outside of Canada.

The data published by the Quebec Ministry of Education shows that school A had fewer students as well as a lower provincial rank in terms of academic achievements than school B. Students at school A had poorer performances on the majority of subjects and they came from lower income families as compared to school B. At both schools the age range of the participants varied from 11-18 years with an average of 14.5 years, and the distribution for grades 1 to 3 (known as *secondaire I-III* in the Quebec high school system) varied between 11%-22% across the levels.

The majority of the participants came from a French-Canadian background (74%), and the rest of the students' ethnic backgrounds were divided between 13 different

geographical regions, such as the Middle East, Asia, North Africa, Eastern Europe, Central America, and South America. Schools A and B were very different in terms of parental ethnic background. School A had a more multi-ethnic composition compared to school B. Only 50-56% of the parents of school A students were born in Quebec in school A, whereas in school B 80-85% of the parents were born in Quebec. In school A, Eastern- Europe was the second most frequent place of birth for both parents followed by the rest of Canada, whereas in school B, the rest of Canada was the second most frequent place of birth for both parents followed by Latin America.

781 (62.2%) of the parents were married, and 475 (37.8%) of the parents were not married. The breakdown of marital status for each school (Table 8) shows that the marital status of the families was similar in both schools.

The majority of the participants' parents were both working. The socio-economical status of the families was categorized according to Blishen and McRoberts (1976) and Blishen, Carrol & Moore's (1987) socio-economic index for occupations in Canada.

Table 8 Parental Marital Status in Schools A and B

Marital Status	School A		School B	
	N	Percentage	N	Percentage
married	286	60	495	63.5
Not Married	191	40	284	36.5
Total	477	100	779	100

Blishen and colleagues developed in 1976 a socio-professional index for 480 Canadian occupations based on academic background, income, and prestige associated with these occupations. This classification was revised in 1987. These occupations were classified in five categories: 1) Non-specialized jobs (for example, security agent, taxi driver, waiter) 2) Specialized positions (for instance mechanical operator, truck driver, construction worker, painter, dancer) 3) Technicians and White collar jobs (for instance cameraman, bank teller, mailman) 4) business owners and service staff (for instance real state agents, police, librarian) and 5) Professionals (doctors, lawyers, university professors). This classification was used for the purpose of the present study.

The first two categories represented low socio-economic status, the third and fourth categories represented the middle-class, and the fifth one represented high socio-economic status. Although these classifications were made in 1987 and

might not exactly represent the categories for today's occupational possibilities, it is still frequently used by most of the researchers in the socio-demographic field. Blishen *et al.* (1987) did not propose a combination of the occupational classification of both parents into one category and the same index was used for both men and women. The socio-economical status of the parents using the Blishen *et al.* (1987) index indicated the distribution as shown in Table 9.

Table 9 Parents' Socio-Economic Status for Schools A and B by Percentage

	Non-specialized jobs	Specialized jobs & Artists	Tech & white Collar jobs	Business Owners & Service staff	Professional
School A					
Father	28.9	20.3	21.3	16.3	13.2
Mother	20.5	33.2	25.5	14.9	5.9
School B					
Father	23.9	18.2	25.9	20.6	11.4
Mother	15.9	43.7	22.6	13.2	4.9

Measures

All the information presented in this study was based on a self-report questionnaire completed by the adolescents. The present study is part of a larger study, which examined different aspects of the interpersonal relationships of adolescents and certain index of their psychosocial adaptation using self-report questionnaire.

The instrument had 19 pages with different sections, including: parental bonding, parental tolerance, family

conflict, peer relationships, family support, delinquency, academic problems, psychological distress, suicidal behavior, and drug use. All the possible answers to the items were organized on four-point Likert type scales (e.g., 1=not at all/never; 2=sometimes/a little; 3=often/pretty well; 4=always/totally).

For the purpose of this study four scales of the questionnaire evaluating the characteristics of parental practices were used. These sections included: affection (the strength of the emotional bonding between parent and child), parental control (measured by the level of parental supervision, tolerance, and psychological control), parental conflict (in terms of frequency, and emotional impact on the participants), and suicidality (existence of suicidal thought/attempt). Each section of the instrument (except suicidality) was designed separately for each parent.

Another scale in the questionnaire evaluated the psychological distress level among the adolescents. Each part of this questionnaire was carefully designed based on previously validated instruments, which had already been used for many years in various studies. Each scale was validated for a sample of Quebec adolescents.

Psychological Distress

In order to measure psychological distress among the participants a self-report questionnaire called l'Indice de Détresse Psychologique de l'Étude de Santé Québec (IDPSEQ-14,

Préville, Boyer, Potvin, Perrault, & Légaré, 1992) was used. This section of the questionnaire had 14 items investigating four factors, including depression, anxiety, irritability, and cognitive problems. The participants were asked to report how often during a week prior to the test they suffered from the following symptoms: 1) sadness and hopelessness, 2) tension and stress, 3) confusions and loss of memory, 4) being angry for no reason. The assessment of psychological distress among the participants was based on a series of Lickert type questions ranging from 1 to 4. The choices were 1= never, 2= sometimes, 3= often, and 4= very often. The test showed a strong validity with other measures for determining depression and anxiety in adolescents (Deschenes, 1998). This instrument had a high internal consistency, with a strong Cronbach alpha value of .88 and .90.

Emotional Bonding with Parents

To assess the affection and the strength of emotional bonding between adolescents and their parents, the questionnaire used in this study included 17 items. The majority of the questions in this section of the questionnaire were inspired by the *Caring Scale of Parental Bonding Instrument (PBI)* (Parker et al., 1979). Other items used in the construction of this scale came from the Offer self- Image Questionnaire for Adolescents (OSIQ) developed by Offer, Ostrov and Howard (1981), and the Inventory of Parent

Attachment (IPA) constructed and validated by Armsden and Greenberg (1987).

For the purposes of this study and to evaluate the strength of the emotional bonding with parents, only the first part (caring/ rejection) of the original instrument was used.

Parker validated the Parental Bonding Instrument in 1979 based on 150 participants' response to a 25 items questionnaire. The Varimax factorial analysis of the data provided by the participants indicated the existence of two factors concerning parent and child bonding. The first factor was care vs. rejection with 12 questions, this factor was found strongly bipolar with a clear "care- rejection" dimension. The item loading for this factor was always above .50 and it accounted for 28% of the total variance. The reliability of the PBI was .88 for the caring dimension and .74 for overprotection.

As said above, the emotional bonding section of the questionnaire used in this study had a total of 17 items, with 12 items taken from the PBI. Five other questions were added to cover those aspects of parent-child bonding missing from the PBI. Two of these questions came from the IPA and address both empathy and alienation regarding the relationship with parents. Another two items were from the OSIQ and evaluate self-alienation and attachment security between parent and child from the adolescent's point view. The last additional

item was an original question, which directly asked the adolescent about the quality of parental affection expression.

The internal consistency for both maternal and paternal versions of the emotional bonding section of the questionnaire was high (alpha mother = .90, alpha father= .92).

Parental Control

The following three areas of parental control were investigated by using three different measures: parental supervision, psychological control and parental tolerance.

i) Parental supervision:

The term supervision is defined as active parental involvement in adolescent monitoring. Over the past years different questionnaires have been used by researchers in this domain (Patterson, Stouthamer-Loeber, 1984; Cernkovich & Giordano, 1987; Brown, Mounts, Lamborn, & Steinberg, 1993; and Dishion and McMahon, 1998) to examine parental supervision. The rationale which underlies the theoretical approach to these instruments is that the parents' knowledge of their children's activities and behaviors outside their homes is a good indication of the level of monitoring them.

The questionnaire used in this study was inspired by Brown *et al.* (1993) work on assessment of parental supervision and six of the nine questions asked in this section came from that questionnaire. This scale evaluates the level of parental awareness regarding their adolescent's outside daily activities. Questions such as "my parents know who I am with

or where am I going at night" were asked to evaluate the level of parental supervision. A score of three and above indicates the presence of supervision and a score of 2 and below represents lack of supervision ($\alpha = .85$).

ii) Psychological Control:

The interest in the construction of a psychological control measure emerged in the late 60s specifically from Becker (1964) and Schaefer (1965). In 1996 Barber developed one of the most recent instruments used to evaluate parental psychological control over their children. He believed feeling controlled, devalued, manipulated, and criticized is a subjective experience and self-reports from the children might be the most valid way to evaluate parental psychological control. He constructed a 16-item questionnaire to measure parental psychological control, but only 8 items formed a single factor when the full data was used. The value of alpha ranged from .80- .83 across his sample. In the questionnaire used in this study eleven items has been dedicated to the parental psychological control section, with eight of them taken from the *Psychological Control Scale- Youth Self Report (PCS- YSR)* (Barber, 1996). Three original items with positive nature were introduced (for example: my mother let me make my decision independently) in order to balance the positive and negative parental form of action in this scale.

According to Barber the most common methods of psychological control used by parents are: changing the

subject when the child has something to say, finishing his or her sentence, trying to change the way the child feels or thinks, blaming the child for other family members' problems, and bringing up the child's past mistakes. Thus the questionnaire used in this study aimed at detecting parental interference with adolescents' decision-making, self-expression, and autonomy.

Parental Tolerance

The assessment of parental tolerance was based on a series of original Lickert type questions developed by Claes (1998) to evaluate parental tolerance toward adolescent's peer relationships. This section had 5 questions, with 4 questions aimed at tolerance toward friends, and 1 aimed at parental reactions towards coming home after midnight. There were four levels of response to each question, and the validity of this section was tested with alpha value of .78. The most common themes covered in this section included each parent's reaction to coming home after midnight on week-ends, staying at same sex friends places or sleeping over, drinking beer with friends, having opposite sex friends at home, and going on vacation with friends.

Parental Conflict

The aim of this study regarding the conflict between parents and adolescents was to evaluate the conflicts on two dimensions: frequency and the emotional impact of the conflict on the adolescent. The first part of the conflict section,

which assessed the frequency of the conflict, was evaluated by using a very popular measure, called *Issue Checklist measure*, used in many parent- child relationship studies. This measure was originally constructed by Robin, Kent, O'Leary, Foster, & Prinz (1977) and revised by Prinz, Foster, Kent, O' Leary (1979). This questionnaire was created to evaluate the frequency and the intensity of the classical arguments and disagreements between the adolescents and their families. In this questionnaire Prinz *et al.* suggested to follow three guidelines: first, identify if the question asked is a source of argument (conflict) in the family. A simple yes or no response would clear this matter. The second step is, if the answer is yes to the previous question, how frequent the conflict has occurred in the past month. The final step would be to find out the intensity of the conflict on a scale of 1 (calm) to 5 (angry).

In this approach the frequency of the conflict was assessed on a Lickert type scale questions ranging from 1 (never) to 4 (very often). A high score indicated a high frequency of conflict between parents and adolescents. For the frequency the value of alpha for the mother was .72, and for the father it was .76.

The second part of the conflict section in the questionnaire used in this study measured the impact of the conflict on the adolescent. The impact of conflict, which causes problem between parent and child, should not be under-

estimated. The addition of a measure to count for the impact of the conflict was inspired by the work of Laursen and Collin (1994). These two researchers challenged the idea of measuring the frequency as the only source of intensity of conflict. They argued that in certain families conflicts are frequent due to more restrictions in certain areas such as the adolescent's tidiness or the sharing of domestic chores. In these cases, although the frequency of the conflict may be relatively high, it doesn't involve important negative emotional effects.

The classical definition of conflict includes explicit expression of disagreement between parent and child, which has negative emotional impacts such as sadness, rage and anger. Thus Laursen and Collin (1994) suggest that in order to get more accurate results, the emotional impact measure should be added to instruments such as the Checklist Issue Measure (Prinz *et al.*, 1979). Overall, there are fourteen items in the conflict section, which are taken from the *Checklist Issue*. The participants were asked to indicate (on a four point scale of very often, often, sometimes, and never) if any of the given scenarios in the questionnaire caused a conflict between them and their parents, and whether or not this conflict had an emotional impact on them. There were 14 items in this scale, which covered the main sources of conflicts between parents and adolescents. The value of alpha for emotional

impact of the conflict was .78 and .70 for mother and father respectively.

Suicide

Suicide was defined as taking a self-destructive action with intent to die. It has different categories. Suicidal ideation is when an individual has thoughts of wanting to kill him or herself. Suicide attempts are when the individual takes lethal action with intent to die and the seriousness of the suicide depends on several factors (Pfeffer, 2001).

Risk factors such as intent to die, degree of lethality, extent of depression and hopelessness, as well as impulsivity are among the factors that help to differentiate between suicidal thoughts and attempted suicide (Beautrais, 2001). According to Beautrais (2001) a serious suicide attempt is defined as "one that require hospital admission for more than 24 hours and meets one of the following criteria: (i) treatment in a specialized unit including Intensive Care Units (ii) surgery under anesthesia (iii) Extensive medical treatments such as antidotes (iv) using high risk methods such as hanging or gunshot."

The term "serious suicidal ideation" has not been defined clearly in the literature and there is a large range of intensity in suicidal ideation in the general population (Tousignant *et al.*, 1993). Different researchers suggested that the quality and the format of the questions asked in different questionnaires are the reasons behind different

reported rates of serious suicidal ideation (Klimes-Dougan, 1998; Wagner, 1997; Diekster, 1995).

Klimes-Dougan's (1998) results demonstrated that some children and adolescents are more comfortable admitting to suicidal ideation if asked through a self-report questionnaire rather than in a direct interview. She also noted that some adolescents have discrepancies in their response to questions, meaning that they initially report suicidal behavior and deny it later. In examining inconsistencies during the period of inquiry, her results indicated that a good self-concept might help the adolescent to either forget the previous suicidal thoughts or reinterpret them. She suggests that this reinterpretation could be an adaptive mechanism for adolescents as they engage in the process of building self-confidence and a stable identity.

Empirical studies had not been successful in developing a "practical biological test" to identify suicide risk based on a particular gene for example (Pfeffer, 2001). Most of the studies on suicidal behavior use self-report questionnaires as a tool to identify the risk for suicidality. Research has demonstrated that the adolescents' reports compared with parents' reports indicated higher prevalence of suicidal behaviors including ideation and attempts (Pfeffer, 2001; Klimes-Dougan, 1998). Although self-report questionnaires are time and cost-effective tools for identifying at risk children and adolescents, most of them are highly sensitive and

identify a high percentage of the adolescents at risk. However in order to prevent a false positive diagnosis of suicide risk in adolescents, Klimes-Dougan (1998) suggests the application of a self report questionnaire followed by a direct interview of the individuals who scored high in risk of suicide.

In the suicide part of the questionnaire used in this study, eight items were taken from Tousignant *et al.* (1993). These questions evaluated adolescents' suicidal behaviors including ideation, planning, attempts, and frequency for a period of twelve months prior to completing the questionnaire. The participants were asked if they ever had suicidal thoughts or made suicide attempts in the past year or had any history of suicide attempts in their lives. A straight yes/no answer determined suicidal behavior. They were also asked about the duration of the suicidal thoughts and whether they really wanted to commit suicide.

In general the participants of this project were initially categorized into three groups: The experimental group which consisted of two subgroups: adolescents with suicidal ideation and those who had made attempts and the control group of adolescents without suicidal ideation or attempts. Eventually, since the two subgroups of suicidal ideation and suicide attempts were very hard to distinguish in terms of the variables involved in the hypothesis of this study, they were merged into one group called suicidal behavior. The statistical

analysis in the next section concerns all these groups and eventually focuses on the two groups involved in this study.

Chapter 3

Results

In this section the results of the statistical analysis for this project will be presented. The section starts with socio-demographic characteristics of all the groups involved in the study (non-suicidal, suicide ideation, and suicide attempt) followed by descriptive analysis of parental characteristics for each group. The last part of the section is dedicated to statistical analysis to test the hypothesis of this thesis.

Socio-demographic Characteristics of Participants

Table 10. Descriptive Analysis Gender and Age All Groups

	Non-suicidal	Suicide ideation	Suicide attempt
Gender			
Female			
N	320	222	41
Percentage	43.4	70.0	77.4
Male			
N	418	95	12
Percentage	56.6	30.0	22.6
Age			
Mean	14.58	14.58	14.61
Minimum	12.00	12.00	12.67
Maximum	18.00	18.00	18.66
Total			
N	738	317	53
Percentage	100	100	100

Table 10 Shows the gender and age representation in each group. The female participants were greatly over represented in both the suicidal attempt (77.4%) and the ideation (70.0%) groups compared to the non-suicidal group (43.4%). The ratio of females to males for the suicide attempt group was 3.42:1 and

for the ideation group 2.3:1, whereas in the non-suicidal group the number of females was much less than male participants.

The age means for the non-suicidal, suicide ideation and attempt group are very close (14.44, 14.58, and 14.61 years old respectively). The analysis of variance indicated that there was no significant difference between the age means of the suicidal ideation and non-suicidal groups $F= 3.37$, $P= .067$. The age mean difference for the suicidal ideation and suicide attempt groups was also found to be non-significant $F= .083$, $P= .774$.

Parents' income for all three groups was also close. Table 11 shows the socio-economical status (parents' income) for all three groups. Overall for the three groups involved in the study, fathers had a higher annual income than mothers (non-suicidal group: father= 43.88, mother=41.45; suicide ideation: father= 43, 42, mother= 40.15; attempts: father= 45.35, mother= 41.55). However the fathers in the suicide attempt group had a slightly higher annual income than those in the other two groups (45.35).

Table 11. Descriptive Analysis for All Groups (Family Income)

Groups	Father annual Income X 1000 \$	Mother annual Income X 1000 \$
Non- Suicidal Group		
N		
Valid	567	533
Missing	171	205
Mean	43.88	41.45
Minimum	23.20	20.32
Maximum	78.69	83.42
Suicide Ideation Group		
N		
Valid	245	221
Missing	72	96
Mean	43.42	40.15
Minimum	21.24	19.12
Maximum	74.22	86.81
Suicide Attempt Group		
N		
Valid	47	32
Missing	6	21
Mean	45.35	41.55
Minimum	24.81	26.82
Maximum	74.22	71.08

The mean difference of annual incomes was not significant for suicidal and non-suicidal groups ($F_{father} = 2.31, P = .131; F_{mother} = 2.08, P = .152$) as well as for suicide ideation and attempt groups ($F_{father} = .175, P = .676; F_{mother} = 1.85, P = .174$).

Socio-demographic Characteristics of Parents

Socio-demographic analyses were performed to explore two parental characteristics including ethnicity and education. Tables 4 and 5 (Appendix 1) show the parents place of birth and indicate that the majority of the parents in all three groups

were born in Quebec. Chi Squares analyses between the three groups revealed non significant differences in the case of mother's and Father's ethnic origin. The parents' educational background analyses (Tables 7 and 8 in Appendix 1) showed that parents with a high school diploma had the highest representation in all three groups. Here again, Chi square analyses revealed no significant differences between the three groups.

Descriptive Analysis: Parental Practices characteristics

The followings tables present the descriptive analysis of the parental practices measures for mothers and fathers in each group separately.

Table 12. Descriptive Analysis Mothers' Practices

	Non- suicidal N=738	Suicide ideation N=317	Suicide attempt N=53
Emotional Bonding	Mean= 57.02 SD= 8.26	Mean= 51.40 SD= 11.16	Mean= 51.00 SD= 10.42
Supervision	Mean= 27.65 SD= 5.35	Mean= 24.92 SD= 5.44	Mean= 25.28 SD= 6.13
Control	Mean= 16.76 SD= 3.46	Mean= 18.53 SD= 4.17	Mean= 18.58 SD= 4.26
Tolerance	Mean= 12.39 SD= 3.44	Mean= 12.58 SD= 3.64	Mean= 13.09 SD= 3.28
Conflict Impact	Mean= 1.97 SD= .53	Mean= 2.30 SD= .54	Mean= 2.41 SD= .59
Conflict Frequency	Mean= 1.71 SD= .52	Mean= 2.12 SD= .62	Mean= 2.16 SD= .56

Table 13. Descriptive Analysis Fathers' Practices

	Non- suicidal N=738	Suicide ideation N=317	Suicide attempt N=53
Emotional Bonding	Mean= 52.40 SD= 10.24	Mean= 46.05 SD= 11.70	Mean= 46.08 SD= 12.85
Supervision	Mean= 23.93 SD= 7.02	Mean= 21.01 SD= 6.76	Mean= 21.24 SD= 6.72
Control	Mean=16.09 SD= 3.47	Mean= 17.32 SD= 4.24	Mean= 16.85 SD= 4.72
Tolerance	Mean= 12.32 SD= 3.71	Mean= 12.30 SD= 4.13	Mean= 12.42 SD= 4.10
Conflict Impact	Mean= 1.77 SD= .50	Mean= 2.05 SD= .56	Mean= 2.10 SD= .65
Conflict Frequency	Mean= 1.56 SD= .51	Mean= 1.94 SD= .65	Mean= 1.94 SD= .62

Descriptive analysis for both parents demonstrated that there is a difference in means for the dependent variables (emotional bonding, supervision, control, tolerance, frequency and impact of conflict between parent and adolescent) among the groups. Tables 12 and 13 show that the means for emotional bonding, supervision, control, frequency and impact of conflict with parents, which are at the core of this project, are different for non-suicidal and the other two groups. However the mean differences between suicide ideation and attempts groups are non-significant.

A t-test was performed to check if the means of suicidal ideation and attempt differ significantly.

Table 14. T- test values of Parental Practices between Suicidal Ideation and Attempt Groups

		Sig	t	df	Sig (2-tailed)
Mother emotional bonding	Equal variance assumed	.030	.289	232	.773
	Equal variance not assumed		.293	231.63	.770
Father emotional bonding	Equal variance assumed	.151	.062	232	.950
	Equal variance not assumed		.062	212.986	.951
Mother supervision	Equal variance assumed	.165	1.099	232	.273
	Equal variance not assumed		1.089	214.683	.277
Father supervision	Equal variance assumed	.661	.045	228	.964
	Equal variance not assumed		.045	218.129	.964
Mother control	Equal variance assumed	.732	-.563	232	.574
	Equal variance not assumed		-.565	227.256	.572
Father control	Equal variance assumed	.443	-.821	230	.413
	Equal variance not assumed		-.823	222.211	.412
Mother tolerance	Equal variance assumed	.131	1.601	231	.111
	Equal variance not assumed		1.621	230.668	.106
Father tolerance	Equal variance assumed	.478	-.240	230	.811
	Equal variance not assumed		-.241	222.912	.810
Mother freq of conflict	Equal variance assumed	.036	.850	230	.396
	Equal variance not assumed		.841	222.004	.401
Mother imp of conflict	Equal variance assumed	.233	-.095	230	.924
	Equal variance not assumed		-.096	229.967	.923
Father freq of conflict	Equal variance assumed	.067	.628	226	.531
	Equal variance not assumed		.619	202.554	.537
Father imp of conflict	Equal variance assumed	.882	.258	223	.796
	Equal variance not assumed		.260	221.550	.795

The Bonferroni correction for multiple comparisons was calculated by looking at confidence interval (95%) and dividing the p value of .05 by the number of t-tests done in the analysis, which is 12 in this case ($0.05/12 = .004$). According to this calculation the value of p for each variable must be less than 0.004 to be significant. None of the mean differences were significant even after taking the Bonferroni correction into consideration.

Another t-test was performed to verify the mean differences for the same variables in the suicidal ideation and non-suicidal groups and test whether these two groups are significantly

different. The results showed in Table-15 indicate after Bonferroni correction for multiple t-tests a significant difference between the means of the suicidal ideation and non-suicidal groups for all the dependent variables except parental tolerance (mother $F = .571$, $p = .410$, father $F = 7.218$, $p = .956$).

Table 15. T- test for Parental Practices measures between Suicidal Ideation and Non- Suicidal Groups

		Sig	t	df	Sig (2-tailed)
Mother emotional bonding	Equal variance assumed	.000	-9.05	1049	.000
	Equal variance not assumed		-8.04	465.30	.000
Father emotional bonding	Equal variance assumed	.002	-8.79	1044	.000
	Equal variance not assumed		-8.33	525.85	.000
Mother supervision	Equal variance assumed	.346	-7.54	1048	.000
	Equal variance not assumed		7.50	585.59	.000
Father supervision	Equal variance assumed	.337	-6.18	1042	.000
	Equal variance not assumed		-6.28	605.88	.000
Mother control	Equal variance assumed	.000	7.13	1051	.000
	Equal variance not assumed		6.62	506.30	.000
Father control	Equal variance assumed	.000	4.91	1045	.000
	Equal variance not assumed		4.53	495.82	.000
Mother tolerance	Equal variance assumed	.450	.824	1048	.410
	Equal variance not assumed		.805	562.20	.421
Father tolerance	Equal variance assumed	.007	-.055	1032	.956
	Equal variance not assumed		-.053	533.29	.958
Mother freq of conflict	Equal variance assumed	.541	9.17	1046	.000
	Equal variance not assumed		9.07	574.37	.000
Mother imp of conflict	Equal variance assumed	.000	10.76	1038	.000
	Equal variance not assumed		10.06	509.39	.000
Father freq of conflict	Equal variance assumed	.018	7.89	1027	.000
	Equal variance not assumed		7.56	526.95	.000
Father imp of conflict	Equal variance assumed	.000	9.29	1014	.000
	Equal variance not assumed		8.43	467.86	.000

The Bonferroni correction of multiple t-test required a p value less than .004 for significance which was obtained for all variables except parental tolerance ($t_{\text{tolerance mother}} = .824$, non significant; $t_{\text{tolerance father}} = .055$, non significant).

Since the two groups of suicidal attempts and ideation did not show a significant difference in terms of parental practices variables (which were the main goal of this study) it was decided to combine these two groups to create one group called suicidal behavior. This regrouping has the advantage of increasing the statistical power of the analyses, which might help to test the hypothesis of this study.

Statistical Analysis: Hypothesis Testing

Variables

Three types of variables were involved in this project: Independent, dependent, and control variables (covariants).

Independent variables

The independent variables in this project are gender and family structure. As it is indicated further in the text these two variables significantly discriminate the suicidal behavior and non-suicidal groups. A chi square test was performed to examine the representation of gender and parents marital status among the groups.

As the chi square analysis indicated among the suicidal behavior group, gender is represented unequally with a much higher value for girls. Thus there is a highly significant difference in gender representation in favor of the female participants ($X^2 = 50.08$; $p = .0001$).

Table 16. Chi- Square for Gender for Suicidal and Non -Suicidal Groups

	Observed N	Expected N	Residual	Percentage
Non- Suicidal Group				
Female	320	369.0	-49.0	43.36
male	418	369.0	49.0	56.64
Total	738			
Suicidal Group				
Female	222	158.5	63.5	70.03
Male	95	158.5	- 63.5	29.97
Total	317			

Table 17. Chi -Square for Family Structure Suicidal and Non-suicidal Groups

	Observed N	Expected N	Residual	Percentage
Suicidal Group				
Married	213	158.5	54.5	67.2
Separated/ divorced	104	158.5	- 54.5	32.8
Total	317			
Non Suicidal Group				
Married	541	369.0	172.0	73.3
Separated/ divorced	197	369.0	172.0	26.7
Total	738			

The family structure was analyzed by using parental marital status as a variable. The results indicated that adolescents with separated or divorced parents (32.8%), were over-represented in the suicidal group compared to non-suicidal adolescents ($X^2= 37.48, p=0.000$).

Dependent Variables

The dependent variables for this study included different dimensions of parental practices: mother's emotional bonding, father's emotional bonding, mother's supervision, father's supervision, mother's psychological control, father's psychological control, mother's tolerance toward adolescent's

behavior, father's tolerance toward adolescent's behavior, mother's frequency and impact of conflict on the adolescent, father's frequency and impact of conflict on the adolescent.

Covariant

Psychological distress was introduced as covariant for statistical purpose for both theoretical and empirical reasons. As it was explained in the introduction section, psychological distress refers to a general index for internalized psychological problems, which includes different symptoms of affective disorders such as depression and anxiety (Ilfeld, 1976, 1978). Many of studies cited in the introduction indicated that depression is an important predictor of suicidal behavior, thus it is important to control for this variable when a statistical procedure is performed.

In addition to the variable psychological distress, we also checked if the level of income and the level of education of the two parents distinguished between the two groups suicidal and non-suicidal. This was done to see whether these two dimensions were to be retained as covariables. Table 18 reports the descriptive data for all these variables.

Table 18. Means and standard deviation for psychological distress, parental income and parental education for the suicidal and non suicidal groups

v244 have you ever thought of killing yourself in past 12 months ?		N	Mean	Std. Deviation
Psych distress	Yes	314	30.9108	8.63263
	No	734	23.0531	6.69272
Father's income	Yes	245	43.4229	14.48418
	No	567	43.8827	14.34569
Father's Education	Yes	313	4.37	1.346
	No	734	4.59	1.367
Mother's Income	Yes	221	40.1462	11.65312
	No	533	41.4450	12.04857
Mother's Education	Yes	316	4.37	1.275
	No	735	4.58	1.229

Table 19. Independent Samples T-test for Suicidal and Non-Suicidal Groups

		Sig.	t	df	Sig. (2-tailed)
Psych distress	Equal variances assumed	.000	15.903	1046	.000
	Equal variances not assumed		14.386	481.076	.000
Father's Income	Equal variances assumed	.806	-.418	810	.676
	Equal variances not assumed		-.416	459.129	.677
Father's Education	Equal variances assumed	.359	-2.323	1045	.020
	Equal variances not assumed		-2.337	597.639	.020
Mother's Income	Equal variances assumed	.134	-1.360	752	.174
	Equal variances not assumed		-1.379	423.821	.169
Mother's Education	Equal variances assumed	.957	-2.482	1049	.013
	Equal variances not assumed		-2.446	577.520	.015

As we can see on tables 19, psychological distress highly discriminates the suicidal behavior and non-suicidal groups. The relevant t-statistic is 14.39 with p=0.000 which is highly significant. This is a confirmation of the fact that

psychological distress is the right covariant to be used in further statistical analysis*, **. In case of other variables such as parents' education and annual incomes, the t-test demonstrated no significant differences for both parents' incomes and educational backgrounds between the non-suicidal and suicidal groups. Thus the only variable kept as covariant was psychological distress.

The next step in statistical analysis was performed to test the hypotheses of the study.

Statistical Analysis: Parental Practices and Suicidal

Behaviors

In this study the statistical approach used to assess the relationship between parental practices and suicidal behavior in adolescents was multiple analysis of covariance (MANCOVA), an extension of multiple analyses of variance (MANOVA). MANCOVA is a form of MANOVA, where a covariate is added to control variables for independent factors in order to minimize the error in the outcome.

* The Bonferroni correction for p value was $.05/5=.01$

**A similar t-test for suicidal attempt and ideation revealed that there was no significant difference between the two groups. This was another indication that the suicide attempt and ideation group could be combined into one group.

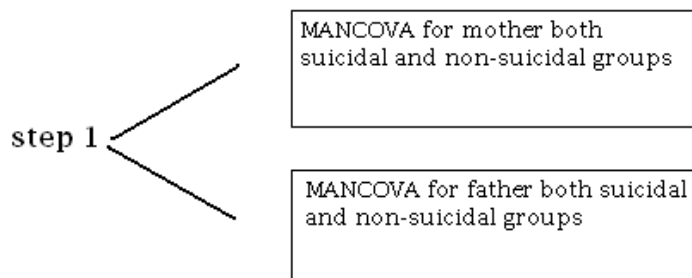
MANCOVA is used to determine the main effect of more than one dependent variable and to detect any possible interaction between the independent variables (IV) and any association among the dependent variables (DV).

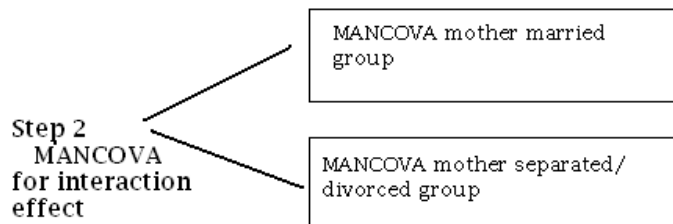
MANCOVA tests have a series of basic assumptions, which include using categorical IVs, and continuous DVs, normal distribution of the DV, adequate sample size, homogeneity of variances and covariances, linear relationship between DVs, and controlling for outliers.

The statistical analysis includes the following steps:

1. MANCOVA analysis for each parent to determine the difference between parental practices variables in each group by controlling for certain variables such as psychological distress, parents' marital status, and gender.
2. Test the possible interaction effects between variables by using a complimentary MANCOVA.

Figure 13. Statistical Procedures Plan





Multivariate Analysis

Step 1

a) Mother's Analysis

Multivariate analysis of covariants (MANCOVA) for each parent was performed separately to test the hypotheses of this project. Table 20 demonstrates the significance of the Wilks' Lambda test for each variable involved in the project and the main and interaction effects between the variables were examined. The multivariate test table demonstrates each factor's effects on the dependent groups. The significance of the f-test indicates the significance of the effect.

Table 20. Multivariate Test for Mother

effect	Test	Value	F	df	Sig	Partial Eta squared	Observed power (a)
Psych distress	Wilks' Lambda	.830	34.692(b)	6.000	.000	.170	1.000
Gender	Wilks' Lambda	.967	5.705(b)	6.000	.000	.033	.998
Marital status	Wilks' Lambda	.965	6.107(b)	6.000	.000	.035	.999
Suicidal behavior	Wilks' Lambda	.969	5.333(b)	6.000	.000	.031	.996
Gender x Marital Status	Wilks' Lambda	.992	1.431(b)	6.000	.200	.008	.562
Gender x suicidal behavior	Wilks' Lambda	.992	1.380(b)	6.000	.220	.008	.544
Marital Status x suicidal behavior	Wilks' Lambda	.982	3.139(b)	6.000	.005	.018	.923
Gender x Marital status x suicidal behavior	Wilks' Lambda	.996	.714(b)	6.000	.638	.004	.287

a Computed using alpha = .05

b Exact statistic

The multivariate tests for mother demonstrated that there is a significant main effect of psychological distress ($F=34.69$, $p=0.000$), parents' marital status ($F=6.11$, $p=0.000$), gender ($F=5.70$, $p=0.000$), and adolescents' suicidal behavior ($F=5.33$, $p=0.0000$), as well as a significant interaction effect for mother's marital status and suicidal behavior ($F=3.14$, $p=0.005$). These results were explored further in a between subjects test (Table 21).

Table 21. Tests of Between-Subjects Effects for Mother

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power(a)
Psych distress	Mother bonding	1	60.110	.000	.056	1.000
	Mother supervision	1	60.982	.000	.057	1.000
	Mother control	1	87.280	.000	.079	1.000
	Mother tolerance	1	4.788	.029	.005	.589
	Mother frequency	1	105.945	.000	.094	1.000
	Mother impact	1	115.183	.000	.102	1.000
Gender	Mother bonding	1	1.104	.294	.001	.183
	Mother supervision	1	20.856	.000	.020	.995
	Mother control	1	5.611	.018	.005	.658
	Mother tolerance	1	3.225	.073	.003	.434
	Mother frequency	1	1.396	.238	.001	.219
	Mother impact	1	.751	.386	.001	.139
Suicidal behavior	Mother bonding	1	16.797	.000	.016	.984
	Mother supervision	1	20.117	.000	.019	.994
	Mother control	1	5.768	.016	.006	.670
	Mother tolerance	1	.168	.682	.000	.069
	Mother frequency	1	8.867	.003	.009	.845
	Mother impact	1	14.073	.000	.014	.963
Marital status X Suicidal behavior	Mother bonding	1	.066	.797	.000	.058
	Mother supervision	1	3.043	.081	.003	.414
	Mother control	1	1.087	.297	.001	.181
	Mother tolerance	1	.203	.652	.000	.074
	Mother frequency	1	6.039	.014	.006	.690
	Mother impact	1	9.823	.002	.010	.879

The Main Effects

The eta squared is the proportion of the total variability in the dependent variable accounted for by the variation in the independent variable. It measures the effect size in ANOVA and could be seen as the correlation between an effect and the dependant variable. Higher value of the eta squared indicates a greater effect.

The univariate between-subject test showed that psychological distress was significantly related to the impact

of conflict with mother on adolescent ($p= 0.000$, partial eta-squared= .102), the level of frequency of conflict between mother and adolescent ($p= 0.000$, partial eta-squared= .094), mother's control ($p= 0.000$, partial eta-squared= .079), mother's supervision ($p= 0.000$, partial eta-squared= 0.57), mother's emotional bonding ($p= 0.000$, partial eta-squared=.056), and mother's tolerance ($p= 0.029$, partial eta-squared= .005).

The univariate between-subjects test showed that gender was significantly related to mother's supervision ($p= 0.000$, partial eta-squared= .020), and mother's control ($p= 0.018$, partial eta-squared= .005). The partial eta square was not very high but in both cases the relationship was still significant.

Although the main effect of both parents' marital status and adolescent's suicidal behavior were found to be significant, since there was an interaction effect for those variables there will be no further explanation at the main effect level.

b) Father's Analysis

The following table showed the multivariate test results for father regarding different variables.

Table 22. Multivariate Test for Father

effect	Test	Value	F	df	Sig	Partial Eta squared	Observed power (a)
Psych distress	Wilks' Lambda	.859	26.87(b)	6.000	.000	.141	1.000
Gender	Wilks' Lambda	.984	2.67(b)	6.000	.014	.016	.868
Marital status	Wilks' Lambda	.931	12.17(b)	6.000	.000	.069	1.000
Suicidal behavior	Wilks' Lambda	.979	4.44(b)	6.000	.000	.026	.985

The multivariate tests for father revealed that there is a significant main effect of psychological distress ($f= 26.87$, $p=0.000$), parents' marital status ($f=12.17$, $p= 0.000$), and gender ($f= 2.67$, $p= 0.014$). There were no significant interaction effects between these variables for the fathers. These results were explored further in father's test of between-subject (Table 23).

Table 23 . Tests of Between-Subjects Effects for Father

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power(a)
Psych distress	Father bonding	1	66.033	.000	.062	1.000
	Father supervision	1	32.040	.000	.031	1.000
	Father control	1	57.922	.000	.055	1.000
	Father tolerance	1	3.835	.050	.004	.499
	Father frequency	1	71.284	.000	.067	1.000
	Father impact	1	80.089	.000	.075	1.000
	Gender	Father bonding	1	.037	.847	.000
Father supervision		1	1.405	.236	.001	.220
Father control		1	.126	.723	.000	.065
Father tolerance		1	11.509	.001	.011	.924
Father frequency		1	.228	.633	.000	.076
Father impact		1	.299	.584	.000	.085
Marital status		Father bonding	1	5.864	.016	.006
	Father supervision	1	57.451	.000	.055	1.000
	Father control	1	.035	.851	.000	.054
	Father tolerance	1	.619	.432	.001	.123
	Father frequency	1	5.236	.022	.005	.628
	Father impact	1	7.599	.006	.008	.786
	Suicidal behavior	Father bonding	1	16.093	.000	.016
Father supervision		1	4.210	.040	.004	.536
Father control		1	.203	.652	.000	.074
Father tolerance		1	.142	.707	.000	.066
Father frequency		1	6.294	.012	.006	.708
Father impact		1	10.030	.002	.010	.886

a. Computed using alpha = .05

The Main Effects

The univariate between-subjects test (Table 23) showed that psychological distress was significantly related to the impact of conflict with father ($p= 0.000$, partial eta-squared=.075), the level of frequency of conflict between father and adolescent ($p= 0.000$, partial eta-squared= .064), father's emotional bonding ($p= 0.000$, partial eta-squared=.062),

father's control ($p= 0.000$, partial eta-squared= .055), father's supervision ($p= 0.000$, partial eta-squared= 0.31), and father's tolerance ($p= 0.050$, partial eta-squared= .004). The impact of conflict with the father had the greatest significant effect whereas father's tolerance had the smallest.

The univariate between-subject test showed that gender was significantly related to father's tolerance toward the adolescent ($p= 0.001$, partial eta-squared= .011). The univariate between-subject test showed that parents' marital status was significantly related to father's supervision ($p= 0.000$, partial eta-squared= .055), the impact of conflict between father and adolescent ($p= 0.006$, partial eta-squared= .008), and the frequency of the conflict between father and adolescent ($p= 0.022$, partial eta-squared= .005). The father's supervision had the greatest significant effect followed by the impact and frequency of conflict between father and adolescent.

The univariate between-subject test showed that adolescents' suicidal behavior was significantly related to father's emotional bonding ($p= 0.000$, partial eta-squared= .016), the impact of conflict between father and adolescent ($p= 0.002$, partial eta-squared= .010), frequency of the conflict between father and adolescent ($p= 0.012$, partial eta-squared= .006), and father's supervision ($p= 0.040$, partial eta-squared= .004). The father's emotional bonding had the largest significant effect followed by the impact and

frequency of the conflict between father and adolescent. The father's supervision had significant effect with regard to suicidal behavior.

The overall outcome of the father's variables also revealed a lower emotional bonding and supervision as well as a higher impact the least and frequency of conflict between father and adolescents who were in the suicidal group.

Step 2

The Interaction Effect

The univariate between-subject test shown in Table 20 also revealed that the interaction effect of mother's marital status and suicidal behavior was significantly related to the impact of conflict between mother and adolescent ($P=.0002$, partial eta-squared= .010), the frequency of the conflict between mother and adolescent ($p= 0.014$, partial eta-squared= .006), and the mother's supervision ($p= 0.081$, partial eta-squared= .003).

A complimentary multivariate test was performed in order to examine the interaction effects of mother's marital status and adolescent suicidal behavior (sections C and D in Appendix 1). In order to see which variable was actually responsible for this interaction effect, the mother's marital status was eliminated as an independent variable. A complimentary MANOVA was separately performed for each different group, married and divorced or separated parents. This gives the opportunity to

see the source of differences between the groups by examining the two categories. Section D in Appendix 1 demonstrated the results of complimentary multivariate analysis for those participants who came from a married family structure.

The multivariate tests for mother revealed that there is a significant main effect of psychological distress ($f=25.572$, $p=0.000$), gender ($f=5.659$, $p= 0.000$) and suicidal behavior ($f=6.923$, $p= 0.000$) for married mother group. The test of between-subject table (section D Appendix 1) gave a picture of each effect in more detail.

The univariate between-subject test showed that psychological distress was significantly related to the impact of conflict between the mother and the adolescent ($p= 0.000$, partial eta-squared= .120), the level of frequency of conflict between mother and adolescent ($p= 0.000$, partial eta-squared= .104), the mother's control ($p= 0.000$, partial eta-squared= .071), the mother's emotional bonding ($p= 0.000$, partial eta-squared=0.052), the mother's supervision ($p= 0.000$, partial eta-squared= 0.052), and the mother's tolerance ($p= 0.028$, partial eta-squared= .007).

The univariate between-subject test showed that gender was significantly related to the mother's tolerance ($p= .000$, partial eta-squared=. 017), the mother's supervision ($p= 0.002$, partial eta-squared= .013), and the mother's control ($p= 0.010$, partial eta-squared= .009).

The univariate between-subject test showed that suicidal behavior of adolescents was significantly related to the impact of conflict with the mother ($p= 0.000$, partial eta squared=.042). The level of frequency of conflict with the mother ($p= 0.000$, partial eta squared= 0.026), the mother's emotional bonding ($p=0.000$, partial eta squared= 0.22, the mother's control ($p=0.001$, partial eta squared= 0.14), and the mother's supervision ($p= .007$, partial eta squared= 0.10).

Sections C and D in Appendix 1 demonstrate the interaction effect of marital status and suicidal behavior in divorced or separated families.

As it was shown, the results of the complimentary multivariate analysis for the participants who came from non-intact (divorced or separated) families were different from the intact families for the mother.

The multivariate tests for mother demonstrated that there is a significant main effect of psychological distress ($F= 9.61$, $p=0.000$), gender ($F=2.46$, $p= 0.025$), but not for suicidal behavior as it was the case for intact families. These results were explored further in test of between-subject and each effect was tested in more detail.

The univariate between-subject test (sections C&D Appendix 1) showed that psychological distress was significantly related to the mother's control ($p= 0.000$, partial eta squared= .100), the level of frequency of conflict between the mother and the adolescent ($p= 0.000$, partial eta squared=

.072), the mother's supervision ($p= 0.000$, partial eta-squared= 0.067), the mother's emotional bonding ($p= 0.000$, partial eta-squared=.066), and the impact of conflict between the mother the adolescent ($p= 0.000$, partial eta-squared=.062). The mother's tolerance was not found to be significant in non-intact families.

The univariate between-subject test showed that gender was significantly related only to the mother's supervision ($p= 0.001$, partial eta-squared= .038).

Chapter 4

Discussion

The rate of suicide among adolescents has increased dramatically in the past two decades. According to the Canadian Association for Suicide Prevention (2004) suicide is the second leading cause of death for people aged 10-19.

This project aimed at evaluating some risk factors for adolescents' suicidal behavior in order to determine the effects of these factors on the increased vulnerability to suicidal behaviors in adolescents.

Adolescence is a life period marked by important biological, psychological and social changes. These changes make the young individuals face new developmental challenges including new body image, progress toward sexual maturity, search for personal identity, acquiring autonomy and independence from parents and engaging in significant peer relationships. As it was demonstrated earlier in the text a series of studies suggested that the majority of adolescents move toward maturity at a harmonious pace without ruptures or major crisis. However some adolescents face difficulties in adjusting to this transition period and become vulnerable to several personal and social problems, including suicidal behaviors. The theories of adolescent suicidal behavior have identified two groups of main determining factors: internal and external. Recent studies on genetics have identified hereditary factors, which are caused by specific genes. The

psychiatric theories also confirmed that hereditary risk factors play an important role in vulnerability to suicide through psychiatric disorders, more specifically depression.

In terms of external factors, the sociological theories have emphasized the role of social factors, particularly social anomie in both decreases in social cohesion and increases in feelings of isolation among the young individuals. The psychological theories of socialization have identified a series of environmental factors, which are responsible for increased risk of suicide in adolescents. These theories are particularly interested in family factors as a major contributor and suggest that lack of affection, parental rejection, inadequate parental control, and a high level of conflict between parents and child are responsible for the increased suicide risks among adolescents.

Discussion of Descriptive Analysis of the Data

Demographic Characteristics

Age

The descriptive analysis of the data provided by the participants in the study revealed that the three initial groups involved in the study (non-suicidal, suicide ideation, and suicide attempt) were very close in age averaging from 14.44 to 14.61 years. Thus all the participants of this study were in their early teens. In addition, as the comparative analyses revealed, the age distribution among the three groups were homogenous.

Gender

The studies cited in the introduction chapter allowed us to formulate a hypothesis indicating that gender is a vulnerability factor for both suicide ideation and attempt. This hypothesis was clearly confirmed since suicidal behavior is three times higher among female than male adolescents. The descriptive analysis of the data revealed that female adolescents had 2.3 times more suicide ideation and 3.4 times more suicide attempts than boys (70%: 30%; and 77.4%: 22.6 respectively). The findings of this project demonstrated that suicidal behavior amongst French Canadian female adolescents follows the same pattern found in other industrialized countries and it is significantly higher than male adolescents.

This female over-representation in the suicidal group may be explained in different ways. During adolescence females are going through a lot of changes and hormonal changes is one of them. The changes in female hormones during the menstrual onset affect mood regulation in females. Many studies observed that reaching puberty associated with increased levels of depression in girls (Bloch *et al.*, 2003; Hendrick *et al.* 1998) and Angold, Costello, Erkanli and Worthman (1999) and suggested that factors associated with changes in androgen and oestrogen levels increase depression in females which might result in demonstration of an elevated risk of suicidal

behaviors.

Another explanation of elevated suicidal behaviors in girls are the higher prevalence of internalized disorders diagnosed among adolescent girls. According to DSM IV the onset of some mental disorders is during the adolescent years and is more common in women. Depressive and mood disorders (Blehar, 1997) such as Dysthymia, Seasonal Affective Disorder and Rapid Cycling Bipolar Disorder have a higher prevalence in females. Social context and values including gender-role conflict, quality of support network, sex-role stereotype and social expectations may also effect gender representation of suicidal behaviors. Chusmir and Koberg (1988) defined the gender-role conflict as any kind of difficulty, either social or psychological, forced on to an individual against her or his internal characteristics in order to meet the traditional expectations imposed on her/him because of gender. In most cultures, gender-role conflict creates a great deal of pressure and stress on young girls and makes them to be more "passive" and "relationship oriented" than boys (Merrill et al., 1990; O'Guinn et al., 1987; Ghaffarian, 1986; Hill & Lynch, 1983) and the pressure and stress make them more vulnerable to seek relief and flee the situation by thinking about suicide.

Family Status

The literature available on adolescent' suicidal behavior and family status (Ponnet et al., 2005; Gould et al., 2003;

Weitoft, 2003) suggests a higher rate of suicidal behavior among adolescents who came from non-intact families. One of the hypotheses of the study was based on this observation and proposed a higher rate of suicide in non-intact families. The descriptive analysis of socio-demographic characteristics of the adolescents' parents in this study confirmed those observations. The number of adolescents with suicidal behavior including both ideation and attempts was higher in divorced and separated families (32.8% and 32.1% respectively) compared to the married families (26.7%).

In his meta-analysis, Amato (2001) concluded that parental divorce affects children and adolescents negatively by inducing feelings of sadness, psychological distress, guilt, and low self-esteem. As Amato stated among all the age groups, adolescents are the ones who were affected the most by parental divorce, and the emotional distress caused by divorce make them more fragile and more vulnerable to suicidal behavior.

Socio-economic Status, Parent's Educational Status and Ethnicity

The link between parental socio-economic status and adolescent suicidal behavior was another question explored in this study. Previous studies (Agerbo, Nordentoft & Mortensen (2002); Groholt *et al.*, 2000) revealed that parents' low socio-economic status associated with higher risk of suicidality in adolescents. The descriptive analysis of the data in this study did not follow the observations in the existing literature and indicated that there was no major difference in family socio-

economic status among the three groups involved in the study. The family annual income was in a similar range across the sample, which showed that no specific relationship was established between adolescents' suicidal behavior and the families' socio-economical status.

One can advance two explanations to understand the differences between the existing literature and the findings here. The studies carried out by Agerbo *et al.* (2002) and Groholt *et al.*, (2000) were conducted respectively in Denmark and in Norway, which are both Scandinavian countries. It is possible that the link between the socio-economic status and the suicidal risks does not exist in Quebec like those Scandinavian countries. On the other hand, the two Scandinavian studies were carried out on clinical groups with completed or seriously attempt which led them to hospitalization. The subjects of this thesis were recruited in the normal population from secondary schools. This difference of the sample status can also explain the absence of links between the socio-economic status and the suicidal risks.

Parents' educational and ethnic backgrounds as possible risk indicators for adolescent suicidal behavior were also examined. The analysis showed an equal representation of the parents' level of education among all three groups. The parents' level of education made no specific contribution to higher risk of suicide in this project.

Most of the participants in all three groups (more than 70%) were French Canadian. The other ethnic backgrounds were very diverse and made it impossible to be put under one single category. However the strong representation of French Canadian participants in the sample leads one to assume that this study concerns only the French Canadian culture and the results apply only to this population.

Parental Practices

A descriptive analysis of parental practices characteristics including expression of the parent-child emotional bonding, parental supervision, control, and conflict, was performed for each parent separately. In conformity with earlier research (Hardt, Eagle, and Johnson, 2007; Schmidh, 2002; Toumbourou and Gregg, 2002; Tobin, 2000, Adam, 1994; Tousignant, 1993) the descriptive analysis for both mother and father indicated that the emotional bonding between parent and adolescent had a higher mean in the non-suicidal group (M mother = 57.02, SD=8.26; M father= 52.40 SD= 10.24) compared to the ideation (M mother =51.40, SD=11.16; M father= 46.05, SD= 11.70), and attempt groups (M mother = 51.00, SD=10.42; M father= 46.08, SD= 12.85). This means that suicidal adolescents perceive a weaker emotional bonding with their parents. These results will be discussed in more detail later in this chapter where the analyses for adolescents' suicidal behavior will be discussed separately for each parent.

Many studies associated parental "behavioral control", which is also called monitoring and supervision, with adolescent's suicidal behavior. As it was suggested in previous sections lack of supervision and monitoring contributes to an increased risk of suicidal behavior. The descriptive analysis of this project supported the findings of the previous studies and reported a higher mean (M mother = 27.65, SD= 5.35; M father =23.93, SD= 7.02) for adolescents' supervision and monitoring in non-suicidal adolescents. Both the suicidal ideation and attempt groups had a lower mean for parental supervision and monitoring of the children (M mother = 24.92, SD= 5.44, M mother= 25.28, SD= 6.13; M father = 21.01, SD= 6.76 and M father = 21.24, SD= 6.72 respectively). This indicates that non-suicidal teenagers reported that their parents were more aware of their whereabouts and that these adolescents conform more to the parents' rules than did the adolescents in the other two groups.

This project also examined parental psychological control, which refers to a form of abusive, and intrusive parental control over adolescents' private lives. Many studies including Yamaguchi (2000) and Carris (1998) suggested that this variable is a contributing factor to adolescent suicide. The results of this study confirmed these observations and found a lower parental psychological control in the non-suicidal group (M mother=16.76, SD= 3.46; M father= 16.09, SD= 3.47) than in both the suicidal ideation and the attempt

groups (M mother = 18.53, SD= 4.17, M mother= 18.58, SD= 4.26; M father =17.32, SD=4.24 and M father=16.85, SD= 4.72 respectively).

Adolescents coming from families with higher parental psychological control reported less freedom of speech and expression, higher parental interference with their process of decision making, higher parental criticism, and less parental tolerance of the adolescent's privacy. These characteristics are elements of unreasonable and unbalanced parental control as Barber (1996, 1992) suggested promotes suicidal behavior in adolescents.

Tobin (2000), Schwartz *et al.* (2000) and Lewinsohn, Rhode & Seeley (1995) showed that adolescents' conflicted relationship with their parents, especially with the fathers, is a risk factor for adolescent suicidal behavior. The findings of this project were consistent with these earlier suggestions and showed that among the suicidal ideation and attempt groups, conflict with parents scores were higher than in the non-suicidal group. The adolescents who reported more conflict with their parents over their appearance, responsibilities (chores), allowance, academic performance, time spent with friends (including opposite sex), alcohol and drug consumption, and sibling relationships demonstrated a higher risk of suicidal behaviors. However the descriptive analysis results of this study did not confirm that father and child conflict is associated with a greater risk of suicidal

behavior. In fact, the findings indicated that the mean of both impact and frequency of conflict was higher for the mother than the father. The fact that adolescents regardless of gender have more severe conflicts with their mothers than their fathers confirms a classical observation. Steinberg (1996) suggests that the mothers are more committed to the task of daily child supervision, which is a considerable source of conflict between parent and child. He believes that this higher involvement of mothers in adolescents' lives increases their vulnerability to engage in a conflicted situation. However since the presence of the fathers in children's lives is weaker there will be fewer occasions for them to confront the adolescents.

As it was shown earlier in the studies the negative impact of the more or less severe conflicts with parents had a greater affect on the adolescents than the frequency of the conflicts and created more personal difficulties for them.

Sample Group Rearrangement

A series of descriptive analysis of the variables involved in the study was performed for all three groups: non-suicidal, suicidal ideation and attempt. The comparative analysis for the parental practices variables for mother and father demonstrated that there was no significant difference between the means of the suicidal ideation and attempt groups in terms of parental practices characteristics. These results indicated

that compared to the non-suicidal group, the suicidal ideation and attempt groups showed a more problematic relationship with each parent. At the same time, the results indicated no discrimination between the two groups in terms of parental practices. This observation deserved to be investigated in more detail but the outcome of the statistical treatments revealed that it could be concluded that the two suicidal groups were comparable in terms of their perceptions of parental practices.

According to the results of this study it seems that parental practices are not a promising path to discriminate between the two suicidal groups or to evaluate the increased risk of suicide attempt in adolescents. In order to discriminate between these two groups and understand the path that lead to the act of suicide attempts other factors should be considered. Previous studies cited earlier in the text indicated that a high level of impulsivity plays an important role in acting out suicidal ideas (Brent *et al.*, 1993; Paris, 2005). The impulsivity factor as a facilitator of suicidal acts deserves to be investigated in more detail but since it did not concern the hypothesis of this study it is suggested that others examine it in the future.

The findings concerning parental practices for suicidal ideation and attempt groups led to a new group rearrangement. The two suicidal ideation and attempt groups were combined together since the means for parental practices variables did

not differ significantly. The three initial groups involved in this study were finally reduced to two: non-suicidal and suicidal behavior groups. This group rearrangement helped to increase the number of the participants in suicidal group and increase the statistical power of the tests used to evaluate and prove the hypothesis of the study.

Variables Analysis

The Choice of the Covariants

As it was demonstrated by many studies (Apter and King, 2006; Beautrais, 2000; Bronisch, 2003; Fergusson *et al.*, 2003; Nruham& Larsson & Sund, 2008) depression is an important indicator of potential suicidal behavior in adolescents. Since depression is one of the major indicators of suicidal behaviors in adolescents it seemed very important for the purpose of this study to control for this factor in order to examine the exclusive effect of parental practices variables on the risk of adolescent suicide. Psychological distress is a term used to explain depressed states in adolescents. Psychological distress in adolescents refers to a series of emotional symptoms including sadness, loneliness, uselessness, living under pressure and tension, and cognitive symptoms such as lack of concentration and indecisiveness (Ilfeld, 1976 & 1978; Perrault, 1989; Preville *et al.*, 1992).

In this study psychological distress was kept as covariant in order to control the results and make it possible

to verify if the parental practices variables still discriminate between the two groups. Along with psychological distress other variables including the parents' socio-economical and educational backgrounds were also considered as possible covariants. A t-test analysis indicated that among the three possible covariants, psychological distress was the only one, which was significant and kept controlled for the whole statistical procedure used in this study.

Independent Variables

As it was mentioned earlier in the existing literature, gender plays an important role in vulnerability to suicidal behaviors in adolescents. This was strongly confirmed by this study which showed that females have an almost 3 times higher rate of suicide attempts and ideation than males. Gender was the first independent variable in this project. The chi square analysis revealed that there was a highly significant difference for gender variable in suicidal behavior group which favored the female participants. These findings support the previous studies and confirmed the proposed hypothesis of this study stating the significant role of gender in vulnerability to suicidal behavior.

Another independent variable involved in this study was family structure. As it was mentioned earlier, the literature on adolescent suicidal behavior suggests that non-intact family structure associates with higher risk of suicide in

adolescents. This was confirmed by descriptive analysis of this study, which found that separated and divorced families are both over-represented in both suicidal groups. Thus family structure was used as an independent variable for the purpose of testing the hypothesis.

Dependent Variables

The dependent variables for this study included the following parental practices characteristic: emotional bonding, supervision, psychological control, tolerance toward adolescent, and frequency and impact of conflict between parent and child.

Multiple Analysis of Covariants for Both Parents

Multiple analysis of covariant (MANCOVA) was the statistical test used in this study. The parental practices characteristics were examined for each parent separately. Four MANCOVAs were performed to test the proposed hypothesis of the study. The first MANCOVA investigated the mother's parental practices characteristics. The second MANCOVA involved variables regarding the father's parental practices. The results of the mother's MANCOVA revealed a significant main effect of psychological distress and gender as well as the significant interaction effect of the mother's marital status and adolescent's suicidal behaviors. However in the case of the father the MANCOVA indicated a significant main effect of

psychological distress, marital status, suicidal behavior, and gender for the father.

The significant interaction effect of marital status and suicidal behavior for the mother called for performing a third and fourth MANCOVA after eliminating marital status as an independent variable in order to determine which variable was responsible for the interaction effect. The third MANCOVA was performed to evaluate the interaction effect for married mothers and the fourth one for divorced or separated mothers.

Parental Practices and Adolescents' Suicidal Behavior

MOTHER

Since the main goal of this study was to examine the relationship between parental practice variables and suicidal behaviors in adolescents, this effect will be discussed first. The results of the first MANCOVA revealed a significant main effect for suicidal behaviors for mothers' parental practices characteristics, but since there was also a significant interaction effect of suicidal behavior and marital status the main effect will not be discussed here. Thus the relationship between adolescents' suicidal behaviors and mothers' parental practices should be explained in terms of the interaction effect. This required performing a complementary MANCOVA. In order to do so, the mother's marital status was eliminated as an independent variable and a separate MANCOVA was performed for each of the following groups: married mothers, and divorced or separated mothers. Psychological distress again

was kept as covariant and the results were controlled for this factor.

The analysis of parental practices for married mothers revealed that adolescent suicidal behavior was significantly related to the impact and frequency of conflict with the mother. In this group, suicidal adolescent girls had the highest mean for the impact and frequency of conflict with their mothers followed by suicidal boys. Johnson, Wise and Smith (2000) already established the link between higher rate of parent-child conflict and suicidal behaviors in adolescents. Among the adolescents who responded to this questionnaire, those who admitted to having suicidal thoughts perceived a higher level of conflict with their parents than the others. As mentioned earlier in the text, in general, girls have more conflict with their parents than boys; the mother-daughter dyad in particular is known to have the most conflict-ridden relationship. The existing literature also indicates that a higher level of conflict (both frequency and impact) between mother and daughter predicts suicidal behaviors in adolescents. However, the impact of conflict has been shown to have a greater effect on adolescent suicidal behaviors since it creates a deeper emotional scar on adolescents' feelings. The impact of conflict disturbs the adolescent's inner peace more than the frequency of conflict by inducing anger and frustration. The results obtained here confirmed the previous studies and the proposed hypothesis of

this project claiming that impact and frequency of conflict is significantly related to adolescents' suicidal behavior (Lewinsohn *et al.*, 1995; Shagle and Barber, 1995; Wagner, 2003).

The second maternal practices characteristic related to adolescent's suicidal behaviors was emotional bonding between mother and child. The association between the adolescent's suicidal behaviors and lack of parental care, warmth, closeness, attention, especially disturbed mother and child relationship, as well as parental rejection, is well documented in the literature (Hollis, 1996, Tobin, 2000; Toumbourou & Gregg, 2002; Wagner, 1994). It has been abundantly demonstrated that the quality of the parents' emotional bonding with their children is a predictive factor for suicidal behaviors in adolescents. As it was expected the results of this study confirmed the proposed hypothesis as it was found that for both suicidal girls and boys a lower mean of emotional bonding with their mother was reported.

The mother's psychological control and supervision, which is also known as behavioral control, were the last parental practices variables which were significantly related to adolescents' suicidal behavior. Barber suggested that an imbalance between parental psychological and behavioral control leads to adolescents' problematic behaviors. Parental practices such as exaggeration in interfering with children's reasonable freedom, trying to dictate them how to think or

act, as well as parents' lack of supervision of their children are amongst the primary family characteristics of suicidal adolescents (Carris, 1998; Yamaguchi, 2000). A high level of maternal psychological control and low level of maternal supervision (behavioral control) perceived by both suicidal girls and boys were found by this study, and is another evidence of the importance of these parental variables. These results confirm the hypotheses of the study and warn against excessive psychological control applied on children by the parents, and highlight the seriousness of an adequate amount of parental supervision.

The descriptive analysis of this study demonstrated that adolescents who came from divorced and separated parents presented a higher risk of suicidal behavior than those who came from married families. However, the separate analysis conducted for each parent indicated that in the case of the mother only was there an interaction effect between the mother's marital status and suicidal behavior in adolescents. These results are contrary to the hypothesis proposed in this study since the adolescents living in intact families had a higher mean of suicidal ideation. The subsequent analysis demonstrated that among the maternal practices involved in the study, it was the frequency and most importantly the emotional impact of the conflict that are significantly associated with increased risk of suicidal behavior with adolescents who lived

in intact families. However this was not the case for those who lived in divorced or separated families.

The uncertainty surrounding the issue of the mothers' marital status and its role in elevated risk of adolescents' suicidal behaviors calls for more research. However one could suggest some hypotheses to understand this phenomenon. In some intact families there is tension and conflict between the parents in terms of issues such as educational values or school results, which could translate into stress, and tension in the relationships between children and their parents as well as psychological distress for adolescents. In case of parental divorce due to conflict the children stay mainly with the mother, this new situation can reduce the number and the intensity of the conflicts with her (Hetherington and Stanley-Hagan, 2002).

In addition, certain studies show that after a divorce, the mothers monitor their children's activity less closely which contributes to reduced number of conflicts with her (Collins and Laursen, 2004). Other studies also observed that certain adolescents react to the divorce by pulling away from the family, which again reduces the sources of conflicts with the mother and eventually helps the adolescents to adjust to the divorce (Hetherington and Stanley-Hagan, 2002).

FATHER

The literature on parental practices characteristics, as it was mentioned earlier in the text, has indicated a major

role for emotional bonding between parent and child in terms of preventing suicidal behaviors in adolescents. Father's care, especially toward girls, has been designated as a contributing factor for adolescents' suicide by some researchers (Adam, 1994; Tousignant *et al.*, 1993, 1994). The results of this study indicated a significant main effect of suicidal behavior and parental practices variables for father. This confirmed the previous findings along with the proposed hypothesis of this study indicating that suicidal adolescents had a lower emotional bonding and affection with their father than non-suicidal ones. As it was expected, the suicidal girls had a lower score of emotional bonding with their fathers, which suggest that a lower emotional bonding with the father affects young girls and puts them at a higher danger for risks of suicidal behaviors.

The impact and frequency of the conflict with adolescents were the next significant paternal parental practices, which associated with suicidal behaviors in adolescents. As the literature on parent- child conflict suggested the impact of conflict, more than the frequency of conflict with parents, affects young boys and girls regarding a higher risk of suicidal behaviors. The hypothesis of this study proposed that a higher rate of impact and frequency of conflict associates with adolescent's suicidality and it was supported by the result obtained here.

Paternal supervision was the last parental practices characteristic associated with adolescents' suicidal behavior. The results of this study confirmed that the father's lack of supervision associates with adolescent's elevated risk of suicidal behaviors. These findings support the proposed hypothesis of the study claiming that lower parental supervision increases the risk of suicidal behavior in adolescents.

Overall these results confirmed the hypotheses of the study and demonstrated that the adolescents in the suicidal behaviors group mainly perceived a more problematic relationship with their fathers. They reported their father's parenting approach as less affectionate, more conflicted, and less involved in their supervision and daily activities.

Father's Main Effect of Marital Status and Adolescents' Suicidality

The father's marital status was significantly related to his parental practices characteristics. The strongest relationship was found for father supervision followed by the emotional impact of the conflicts and their frequency. A MANCOVA for the father showed that the father's supervision in divorced and separated families is weaker than in the married families. The lower mean for the divorced and separated group indicated that father's supervision of his adolescent child is related to his marital status. This lack of paternal supervision in divorced and separated families could be due to the absence of the father in the adolescents' life.

The data for the emotional bonding and father's affection pointed in the same direction. The adolescents who came from intact families showed higher emotional bonding with and affection from their fathers since their father's presence in their lives gave them the opportunity to connect and bond with him. The data on maternal supervision also indicated that the adolescents from non-intact families had the lowest maternal supervision. A possible explanation for this fact is that since the father figure is absent from the adolescents' lives in most cases the mother single handedly has to take care of all the aspects of the daily life of the adolescents.

The second and third significant paternal parental practices regarding marital status was the impact and frequency of the conflicts between father and adolescent. The data showed that the impact and frequency of the conflict with the father is higher in married group adolescents. The highest impact and frequency of conflict with the father was found in suicidal girls in intact families. This result supported the part of the hypothesis of this study that suggested that higher impact and frequency of conflict with parent increases the risk of suicidality in adolescents. It did not confirm however the part of the hypothesis suggesting a lower level of suicidal behaviors in intact families. One may speculate that in divorced or separated families the father has less or no contact with the child and as a result there would be a lesser chance of getting into disagreements and conflicts with him.

Main Effect of Gender for Both Parents

The main effect of gender was significant for both parents. Suicidal girls perceived lower maternal bonding and less control compared to boys. They also reported a higher level of maternal supervision and a greater impact and frequency of conflict with their mothers than adolescent boys. These findings once again warn against the positive association of a conflicted and affectionless relationship between mother and daughter and emphasize the quality of the mother-daughter dyad relationship that was documented earlier in the text (Allison & Schultz, 2004; Smetana, Metzger, Campione-Barr, 2004).

However, regarding their relationship with their fathers, suicidal girls also perceived less affection, less supervision, and higher control and conflict (both impact and frequency) than the boys. The association between a low level of emotional bonding and paternal cares as suggested by Adam (1994) and Tousignant *et al.* (1993) was highlighted again by the results of this study in the case of suicidal girls.

Summary and Conclusions

This project was an attempt to investigate the relationship between certain aspects and characteristics of parental practices and the presence of suicidal behavior risk in French Canadian adolescents. This project also touched some socio-demographics factors related to adolescents' suicidal behavior such as gender and family structure.

The participants of this study were divided into three groups of non-suicidal, suicide ideation and suicide attempt initially but the last two groups were combined together under one group called suicidal behavior. This regrouping was due to insignificant differences between the means of suicide ideation and attempt groups regarding parental practices variables.

The socio-demographic findings of this study suggested that young French Canadian girls have a rate of suicidal behavior 3.4 times higher than boys. These statistics follow the same pattern as found for adolescent girls in other industrial countries. The overrepresentation of girls in the suicidal ideation and attempt populations is well documented in many cultures in the world.

Other socio-demographic factors examined in this study were the parents' socio-economic status, educational background, and ethnicity. Unlike other studies, these socio-demographic factors did not discriminate between the suicidal and non-suicidal adolescent and those differences were interpreted by the fact that this study was conducted in Quebec on a non-clinical sample.

The evaluation of parental practices characteristics after being controlled for psychological distress and family structure concluded that in the case of intact families the high emotional impact and frequency of conflict with the mother, lack of maternal emotional bonding, excess of maternal

psychological control, and lack of maternal supervision were significantly related to adolescents' suicidal behaviors. In both families structures, the strongest significant characteristics of paternal parental practices perceived by adolescents with suicidal behavior was the lack of emotional bonding between father and child, the high impact and frequency of conflict between them, and lack of paternal supervision.

The general hypotheses of this study concerning adolescents with a risk of suicidal behaviors, which perceived a more troubled relationship with their parents, were confirmed. The results of this study are in line with the findings of the majority of the previous studies but provided more details. The quality of emotional bonding between parent and child, especially the father, plays an important role in association with adolescents' suicidal behaviors. This study proved once more that affective attachment between parent and child protects the adolescents from suicidal behaviors and parental rejection increases this risk.

In terms of conflict between parent and child, the study revealed that the emotional impact of conflict with the parents associates more with elevated risk of suicidal behaviors in adolescents than the frequency of the conflicts. Therefore once again it was confirmed that the emotional impact of conflict with a parent has more affect on adolescent's risk of suicide than the presence of conflict.

This study also concluded that maternal supervision is one of the most important factors regarding adolescents' suicidal behavior. The concept of "supervision" was used frequently to evaluate the level of parental control of the adolescents (Cernkovich & Giordano, 1987; Dishion & Mc Mahon, 1998; Barber, Stolz & Olsen, 2005). This concept refers to the quantity and accuracy of the information provided to the parents by the adolescents concerning their daily activities. Kerr and Stattin (2000) argued for the validity of this approach and suggested that monitoring is more a confidence measure than control. Parents are aware of their children's daily activities because the adolescents tell them, thus this concept is based on a reciprocal confidence and depends on the affective bond between parent and child.

The study also concluded that the highest maternal psychological control was observed among suicidal boys and girls. This echoes Barber's (1996) observation that maternal intrusive control disturbs adolescents' autonomy, self-confidence, and identity formation and makes them more vulnerable to suicidal behaviors.

Strength, Original Contributions and Limitations

This study had different strengths. The first was the size and representation of the sample. This was a cross-sectional study involving 1256 students coming from two different high schools in the region of Montreal. The participants were all

students from Secondary I, II, and III with an approximately equal number of boys and girls. The samples involved in this study were non-clinical which makes it important since there are not many published studies on adolescents' suicidal behavior that were conducted with non-clinical samples. This study examined three sub-groups: 738 students in a non-suicidal group, 317 students in a suicidal ideation group representing adolescents with suicidal thoughts, and 53 students in a suicide attempt group representing those with prior suicide attempts. Again the size of the sub-samples in this study is important in terms of statistical validity.

The quality of the instruments used to measure parental practices, suicidal behaviors, and psychological distress were strength of this study. All of these instruments were validated for the French Canadian adolescent population and presented an excellent psychometric index of validity and internal consistency. This study aimed at examining the association between risk of suicidal behaviors and inadequate parental practices as perceived by adolescents by controlling for certain variables such as psychological distress, gender and family structure. Psychological distress as a control variable was essential in order to identify the exclusive effect of each aspect of the parental practices involved in this study. In fact the results showed that the presence of depression and tension as measured by the psychological distress instrument was the most serious indicator of risk of

suicide in adolescents. These results demonstrated that even after controlling for psychological distress, the quality of parental practices had an unquestionable effect on adolescents' suicidal behaviors. Another strong point of this study was controlling the results for psychological distress. Among the studies cited earlier in the text only a small number of them used psychological distress as a control variable.

The limitations of this study should not be omitted. The participants came from two different schools, thus creating a convenience sample. One has to be cautious about generalization of the data to all Montreal adolescents. However, some of the sampling, such as the percentage of immigrants in one school, indicates some ecological validity of the sample. The ethnic diversity of the sample gives ecological validity since the sample is very similar to the adolescent population of Montreal and makes the sample more representative in this sense.

The data for this project was gathered with a self-report questionnaire. The limitations of this type of measures are well documented. With self-report questionnaires there is always the possibility of the participants misunderstanding the questions especially in the case of very young participants. During the process of verifying the answers provided by the participants it was noticed that some of them did not pay attention or did not understand the questions

properly. For example, in the suicide section the questions were arranged in an eliminatory order. This means that if the participant said no to the question, "Have you ever thought of killing yourself in the past 12 months?" the rest of the suicide section was supposed to be skipped. Nevertheless, this was not the case for some participants, they responded "no" to the first question and continued to fill in the rest of the section. They did so even when they answered yes to the question "have you ever had a plan to kill yourself?" A number of participants were therefore eliminated from the study. However these types of discrepancies could affect the accuracy of the answers and lead to a lower number of valid answers.

Suicide is a controversial subject and it is perceived by some people as a sin, taboo, or a character flaw and weakness. Not everyone has the tendency to seek attention by pretending suicidal behaviors and not everyone is willing to talk about suicide openly. Although the participants of this project were aware of the confidentiality of the questionnaire, it was not clear if they really trusted that their secrets would be protected, or even that they wanted to be labeled as a suicidal individual.

It should be kept in mind that this study was dealing with French Canadian culture and the outcome of the study should not be generalized to all cultures in the world.

All of these limitations point to the need for further studies on the relationship between adolescent suicidal

behaviors and parental practices. A more controlled study may lead to more precise conclusions and help to design better intervention programs. Projects such as this one help to recognize the characteristics of individuals who are at risk and create programs to target them specifically. A more detailed study involving parents and teachers would help to understand adolescents and their thoughts from different perspectives and makes it possible to have more precise results since it would rely on sources other than the adolescents themselves. Using other measures, especially for impulsivity, might also help to discriminate between the suicide ideation and attempt groups and get more precise results regarding adolescents' suicidal behaviors.

Educational and Clinical Implications

The results of this study suggest multiple applications specifically for planning preventive and therapeutic programs for suicidal adolescents. For example, one of the conclusions of this project was that young girls with lower bonding with both parents and a higher level of conflict with their parents are more at risk for suicidal behaviors. Thus some program should be specifically designed to target these girls and intervene with their parents. In fact the efficiency of prevention programs targeting parents of pre-adolescents with behavioral difficulties has been demonstrated (Dishion & Andrews, 1995). These programs emphasize the development of

appropriate ways of communication and emotional expression as well as conflict resolution for the parents.

Today's society is fast paced and constantly emerging norms, rules and regulations must not be ignored in studying social sciences. New batteries of tests and questionnaires must be developed to meet all the new criteria imposed by different social norms and rules. For example in today's society there are more types of family structures compared to two decade ago. Intact families may include roommate parents, and common law parents. New methods of measurement might provide a better approach to the elaboration of more efficient preventive and treatment programs for many social tragedies such as youth suicidal behavior.

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APPENDIX 1

Statistical Information

Table-1 Gender Distribution Whole Sample

		Frequency	Percentage	Valid	Cumulative Percentage
Valid	Female	555	50.7	50.7	50.7
	Male	540	49.3	49.3	100.0
	Total	1095	100.0	100.0	

Table-2 Schools Distribution Whole Sample

		Frequency	Percentage	Valid	Cumulative Percentage
Valid	School B	680	62.1	62.1	62.1
	School A	415	37.9	37.9	100.0
	Total	1095	100.0	100.0	

Table-3 Grade Distribution Whole Sample

		Frequency	Percentage	Valid	Cumulative Percentage
Valid	Sec I	370	33.8	33.8	33.8
	Sec II	355	32.4	32.4	66.2
	Sec III	370	33.8	33.8	100.0
	Total	1095	100.0	100.0	

Table-4 Father's Place of Birth

		Frequency	Percentage	Valid	Cumulative Percentage
Valid	Quebec	798	72.9	74.0	74.0
	Canada	68	6.2	6.3	80.3
	USA	2	.2	.2	80.5
	N. Africa	23	2.1	2.1	82.7
	Africa	13	1.2	1.2	83.9
	E Africa	16	1.5	1.5	85.3
	Central Asia	11	1.0	1.0	86.4
	Mid East	17	1.6	1.6	87.9
	Haiti	11	1.0	1.0	89.0
	Italy	9	.8	.8	89.8
	Latin America	41	3.7	3.8	93.6
	E. Europe	32	2.9	3.0	96.6
	W. Europe	11	1.0	1.0	97.6
	1Mediterranean	26	2.4	2.4	100.0
Total		1078	98.4	100.0	
Missing	System	17	1.6		
Total		1095	100.0		

Table-5 Mother's Place of Birth

	Frequency	Percentage	Valid	Cumulative Percentage
Valid Quebec	816	74.5	75.3	75.4
Canada	79	7.2	7.2	82.7
N. Africa	16	1.5	1.5	84.2
C. Africa	10	.9	.9	85.1
W. Africa	17	1.6	1.6	86.7
C. Asia	10	.9	.9	87.6
Mid East	14	1.3	1.3	88.9
Haiti	10	.9	.9	89.8
Italy	6	.5	.5	90.4
Latin America	40	3.7	3.7	94.1
E. Europe	36	3.3	3.3	97.4
W. Europe	11	1.0	1.0	98.4
Mediterranean	17	1.6	1.6	100.0
Total	1082	98.8	100.0	
Missing System	13	1.2		
Total	1095	100.0		

Table-6 Parents' Marital Status The Whole Sample

	Frequency	Percentage	Valid	Cumulative Percentage
Valid Married	781	71.3	71.3	71.3
Divorced/ Separated	314	28.7	28.7	100.0
Total	1095	100.0	100.0	

Table-7 Father's Education Whole Sample

	Frequency	Percentage	Valid	Cumulative Percentage
Valid primary School	28	2.6	2.6	2.6
Sec II	40	3.7	3.7	6.3
Sec III	148	13.5	13.6	19.9
Sec V	368	33.6	33.9	53.7
Cegep	206	18.8	19.0	72.7
University	222	20.3	20.4	93.1
NA	75	6.8	6.9	100.0
Total	1087	99.3	100.0	
Missing System	8	.7		
Total	1095	100.0		

Table-8 Mother's Education Whole Sample

	Frequency	Percentage	Valid	Cumulative Percentage
Valid primary School	26	2.4	2.4	2.4
Sec II	31	2.8	2.8	5.2
Sec III	114	10.4	10.4	15.7
Sec V	403	36.8	36.9	52.6
Cegep	269	24.6	24.7	77.3
University	196	17.9	18.0	95.2
NA	59	4.7	4.8	100.0
Total	1091	99.6	100.0	
Missing System	4	.4		
Total	1095	100.0		

Chi Square test for Ideation Group Sex X Marital Status

Table-9 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.547(b)	1	.459		
Continuity Correction(a)	.371	1	.542		
Likelihood Ratio	.543	1	.461		
Fisher's Exact Test				.514	.270
Linear-by-Linear Association	.545	1	.460		
N of Valid Cases	317				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 31.17.

Table-10 Symmetric Measures

	Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Interval by Interval Pearson's R	.042	.057	.738	.461(c)
Ordinal by Ordinal Spearman Correlation	.042	.057	.738	.461(c)
N of Valid Cases	317			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

Chi Square test for Ideation Group Sex X Marital Status

Table-11 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.078(b)	1	.024		
Continuity Correction(a)	4.707	1	.030		
Likelihood Ratio	5.131	1	.023		
Fisher's Exact Test				.029	.015
Linear-by-Linear Association	5.071	1	.024		
N of Valid Cases	738				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 85.42.

Table-12 Symmetric Measures

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Interval by Interval	Pearson's R	.083	.036	2.258	.024(c)
Ordinal by Ordinal	Spearman Correlation	.083	.036	2.258	.024(c)
N of Valid Cases		738			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

Section A : MANCOVA Tables Mother

Table.13 Multivariate Tests Mother

Effect		F	Hypothesis df	Sig.	Partial Eta Squared	Observed Power(a)
Intercept	Pillai's Trace	1667.893(b)	6.000	.000	.908	1.000
	Wilks' Lambda	1667.893(b)	6.000	.000	.908	1.000
	Hotelling's Trace	1667.893(b)	6.000	.000	.908	1.000
	Roy's Largest Root	1667.893(b)	6.000	.000	.908	1.000
Psync Distress	Pillai's Trace	34.692(b)	6.000	.000	.170	1.000
	Wilks' Lambda	34.692(b)	6.000	.000	.170	1.000
	Hotelling's Trace	34.692(b)	6.000	.000	.170	1.000
	Roy's Largest Root	34.692(b)	6.000	.000	.170	1.000
Sex	Pillai's Trace	5.705(b)	6.000	.000	.033	.998
	Wilks' Lambda	5.705(b)	6.000	.000	.033	.998
	Hotelling's Trace	5.705(b)	6.000	.000	.033	.998
	Roy's Largest Root	5.705(b)	6.000	.000	.033	.998
Marital Status	Pillai's Trace	6.107(b)	6.000	.000	.035	.999
	Wilks' Lambda	6.107(b)	6.000	.000	.035	.999
	Hotelling's Trace	6.107(b)	6.000	.000	.035	.999
	Roy's Largest Root	6.107(b)	6.000	.000	.035	.999
Suic01	Pillai's Trace	5.333(b)	6.000	.000	.031	.996
	Wilks' Lambda	5.333(b)	6.000	.000	.031	.996
	Hotelling's Trace	5.333(b)	6.000	.000	.031	.996
	Roy's Largest Root	5.333(b)	6.000	.000	.031	.996
Sex* Marital Status	Pillai's Trace	1.431(b)	6.000	.200	.008	.562
	Wilks' Lambda	1.431(b)	6.000	.200	.008	.562
	Hotelling's Trace	1.431(b)	6.000	.200	.008	.562
	Roy's Largest Root	1.431(b)	6.000	.200	.008	.562
Sexe * Suic01	Pillai's Trace	1.380(b)	6.000	.220	.008	.544
	Wilks' Lambda	1.380(b)	6.000	.220	.008	.544
	Hotelling's Trace	1.380(b)	6.000	.220	.008	.544
	Roy's Largest Root	1.380(b)	6.000	.220	.008	.544
Marital Status * Suic01	Pillai's Trace	3.139(b)	6.000	.005	.018	.923
	Wilks' Lambda	3.139(b)	6.000	.005	.018	.923
	Hotelling's Trace	3.139(b)	6.000	.005	.018	.923
	Roy's Largest Root	3.139(b)	6.000	.005	.018	.923
Sex * Marital Status* Suic01	Pillai's Trace	.714(b)	6.000	.638	.004	.287
	Wilks' Lambda	.714(b)	6.000	.638	.004	.287
	Hotelling's Trace	.714(b)	6.000	.638	.004	.287
	Roy's Largest Root	.714(b)	6.000	.638	.004	.287

a Computed using alpha = .05

b Exact statistic

Table.14 Tests of Between-Subjects Effects Mother

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power(a)
Corrected Model	Bonding	8	19.841	.000	.135	1.000
	Supervision	8	21.920	.000	.147	1.000
	Psyc control	8	19.435	.000	.132	1.000
	Tolerance	8	3.570	.000	.027	.984
	Conflict frequency	8	27.199	.000	.176	1.000
	Conflict impact	8	33.766	.000	.210	1.000
Intercept	Bonding	1	3235.014	.000	.761	1.000
	Supervision	1	2385.272	.000	.701	1.000
	Psyc control	1	1031.848	.000	.503	1.000
	Tolerance	1	780.671	.000	.434	1.000
	Conflict frequency	1	608.558	.000	.374	1.000
	Conflict impact	1	376.449	.000	.270	1.000
Psyc Distress	Bonding	1	60.110	.000	.056	1.000
	Supervision	1	60.982	.000	.057	1.000
	Psyc control	1	87.280	.000	.079	1.000
	Tolerance	1	4.788	.029	.005	.589
	Conflict frequency	1	105.945	.000	.094	1.000
	Conflict impact	1	115.183	.000	.102	1.000
Sex	Bonding	1	1.104	.294	.001	.183
	Supervision	1	20.856	.000	.020	.995
	Psyc control	1	5.611	.018	.005	.658
	Tolerance	1	3.225	.073	.003	.434
	Conflict frequency	1	1.396	.238	.001	.219
	Conflict impact	1	.751	.386	.001	.139
Marital Status	Bonding	1	.857	.355	.001	.152
	Supervision	1	24.404	.000	.023	.999
	Psyc control	1	.005	.943	.000	.051
	Tolerance	1	6.071	.014	.006	.692
	Conflict frequency	1	.913	.339	.001	.159
	Conflict impact	1	4.272	.039	.004	.542
Suic01	Bonding	1	16.797	.000	.016	.984
	Supervision	1	20.117	.000	.019	.994
	Psyc control	1	5.768	.016	.006	.670
	Tolerance	1	.168	.682	.000	.069
	Conflict frequency	1	8.867	.003	.009	.845
	Conflict impact	1	14.073	.000	.014	.963
Sex * Marital Status	Bonding	1	.940	.332	.001	.162
	Supervision	1	1.227	.268	.001	.198
	Psyc control	1	.361	.548	.000	.092
	Tolerance	1	4.803	.029	.005	.591
	Conflict frequency	1	.281	.596	.000	.083
	Conflict impact	1	.021	.884	.000	.052

Table.14 (continued) Tests of Between-Subjects Effects Mother

Sex * Suic01	Bonding	1	2.201	.138	.002	.317
	Supervision	1	.421	.517	.000	.099
	Psyc control	1	.779	.378	.001	.143
	Tolerance	1	1.613	.204	.002	.245
	Conflict frequency	1	1.519	.218	.001	.234
	Conflict impact	1	.031	.861	.000	.053
Marital Status* Suic01	Bonding	1	.066	.797	.000	.058
	Supervision	1	3.043	.081	.003	.414
	Psyc control	1	1.087	.297	.001	.181
	Tolerance	1	.203	.652	.000	.074
	Conflict frequency	1	6.039	.014	.006	.690
	Conflict impact	1	9.823	.002	.010	.879
Sex * Marital Status * Suic01	Bonding	1	1.112	.292	.001	.184
	Supervision	1	.489	.485	.000	.107
	Psyc control	1	2.280	.131	.002	.326
	Tolerance	1	.503	.479	.000	.109
	Conflict frequency	1	.075	.784	.000	.059
	Conflict impact	1	.004	.948	.000	.050

a Computed using alpha = .05

b R Squared = .135 (Adjusted R Squared = .128)

c R Squared = .147 (Adjusted R Squared = .140)

d R Squared = .132 (Adjusted R Squared = .126)

e R Squared = .027 (Adjusted R Squared = .020)

f R Squared = .176 (Adjusted R Squared = .170)

g R Squared = .210 (Adjusted R Squared = .203)

Section B: MANCOVA Tables for Father:

Table.15 Descriptive Statistics Father

	v2 Sex	v6 Parents Family Status	v244 Have You Ever Thought of Suicide in Past 12 Months?	Mean	Std. Deviation	N
Bonding	Girls	Married	yes	46.1931	10.99450	145
			no	53.4669	10.10941	242
			Total	50.7416	11.01508	387
		Separated/ Divorced	yes	43.8485	12.39633	66
			no	50.2462	13.11730	65
			Total	47.0229	13.10928	131
	Boys	Married	oui	45.4597	11.47345	211
			no	52.7850	10.87268	307
			Total	49.8012	11.67985	518
		Separated/ Divorced	oui	49.7458	10.72797	59
			no	51.8732	9.62470	276
			Total	51.4985	9.84456	335
	Total	Married	oui	44.5000	12.14780	30
			no	52.7009	9.56129	117
			Total	51.0272	10.62753	147
		Separated/ Divorced	yes	47.9775	11.43259	89
			no	52.1196	9.60115	393
			Total	51.3548	10.08100	482
Supervision	Girls	Married	yes	47.2206	11.01076	204
			no	52.6178	9.87664	518
			Total	51.0928	10.48788	722
		Separated/ Divorced	yes	44.0521	12.25893	96
			non	51.8242	10.99180	182
			Total	49.1403	12.00805	278
Total	Girls	Married	yes	46.2067	11.50006	300
			non	52.4114	10.17624	700
			Total	50.5500	10.96055	1000
		Separated/ Divorced	yes	22.0000	6.08847	145
			no	25.3802	6.54668	242
			Total	24.1137	6.57815	387
	Boys	Married	yes	17.6061	6.33884	66
			no	20.0769	7.47560	65
			Total	18.8321	7.01005	131
		Separated/ Divorced	oui	20.6256	6.48273	211
			non	24.2573	7.08184	307
			Total	22.7780	7.06716	518
Total	Married	yes	23.2712	6.20853	59	
		no	25.0543	6.40687	276	
		Total	24.7403	6.39948	335	
	Separated/ Divorced	yes	19.9333	8.19560	30	
		no	21.2821	7.09765	117	
		Total	21.0068	7.32559	147	

		Total	yes	22.1461	7.07517	89
			no	23.9313	6.83276	393
		Total	Total	23.6017	6.90559	482
	Total	Married	yes	22.3676	6.13535	204
			no	25.2066	6.46833	518
		Total	Total	24.4044	6.49890	722
		Separated/ Divorced	yes	18.3333	7.01227	96
			no	20.8516	7.23748	182
		Total	Total	19.9820	7.24778	278
		Total	yes	21.0767	6.68829	300
			no	24.0743	6.93998	700
		Total	Total	23.1750	6.99838	1000
Psyc Control	Girls	Married	oui	17.5241	4.09451	145
			no	15.7603	3.08665	242
		Total	Total	16.4212	3.59632	387
		Separated/ Divorced	yes	17.5000	4.79503	66
			no	16.6462	3.61607	65
		Total	Total	17.0763	4.25643	131
		Total	yes	17.5166	4.31426	211
			no	15.9479	3.22022	307
		Total	Total	16.5869	3.78064	518
	Boys	Married	oui	16.6780	3.40102	59
			non	16.5254	3.52179	276
		Total	Total	16.5522	3.49629	335
		Separated/ Divorced	yes	17.1000	4.55881	30
			no	16.1026	3.46506	117
		Total	Total	16.3061	3.71891	147
		Total	yes	16.8202	3.80956	89
			no	16.3995	3.50593	393
		Total	Total	16.4772	3.56357	482
	Total	Married	yes	17.2794	3.91729	204
			no	16.1680	3.34432	518
		Total	Total	16.4820	3.54841	722
		Separated/ Divorced	yes	17.3750	4.70218	96
			no	16.2967	3.51946	182
		Total	Total	16.6691	3.99257	278
		Total	yes	17.3100	4.17677	300
			no	16.2014	3.38865	700
		Total	Total	16.5340	3.67619	1000
Tolerance	Girls	Married	yes	11.7862	3.58466	145
			no	11.9132	3.48868	242
		Total	Total	11.8656	3.52085	387
		Separated/ Divorced	yes	12.2273	4.99783	66
			no	11.8000	3.98121	65
		Total	Total	12.0153	4.50979	131
		Total	yes	11.9242	4.07243	211
			no	11.8893	3.59204	307
		Total	Total	11.9035	3.79126	518
	Boys	Married	yes	13.6949	3.95341	59
			no	12.6486	3.76728	276
		Total	Total	12.8328	3.81560	335

Conflict Frequency	Total	Separated/ Divorced	yes	12.6333	4.28698	30	
			no	12.5897	3.90657	117	
			Total	12.5986	3.97192	147	
		Total	Married	yes	13.3371	4.07583	89
				no	12.6310	3.80437	393
				Total	12.7614	3.86131	482
		Total	Married	yes	12.3382	3.78594	204
				no	12.3050	3.65479	518
				Total	12.3144	3.68970	722
		Girls	Separated/ Divorced	yes	12.3542	4.76827	96
				no	12.3077	3.94070	182
				Total	12.3237	4.23620	278
	Total		Married	yes	12.3433	4.11768	300
				non	12.3057	3.72836	700
				Total	12.3170	3.84725	1000
	Girls		Married	yes	2.1453	.52205	145
				no	1.7175	.49777	242
				Total	1.8778	.54713	387
	Boys		Separated/ Divorced	yes	2.0128	.58961	66
				no	1.7270	.46784	65
				Total	1.8710	.54969	131
		Total	Married	yes	2.1038	.54614	211
				no	1.7195	.49085	307
				Total	1.8761	.54725	518
Boys		Married	yes	1.9859	.55452	59	
			non	1.8148	.48969	276	
			Total	1.8449	.50507	335	
Total		Separated/ Divorced	yes	1.8541	.63785	30	
			no	1.8005	.55362	117	
			Total	1.8114	.56991	147	
	Total	Married	yes	1.9415	.58367	89	
			non	1.8105	.50888	393	
			Total	1.8347	.52532	482	
	Total	Married	yes	2.0992	.53519	204	
			no	1.7694	.49539	518	
			Total	1.8626	.52792	722	
	Girls	Separated/ Divorced	yes	1.9632	.60623	96	
			no	1.7742	.52446	182	
			Total	1.8395	.56025	278	
Total		Married	yes	2.0557	.56149	300	
			no	1.7706	.50273	700	
			Total	1.8561	.53692	1000	
Conflict Impact		Girls	Married	yes	2.0901	.67326	145
				no	1.6070	.54516	242
				Total	1.7880	.63991	387
		Girls	Separated/ Divorced	yes	1.8194	.57528	66
				non	1.5853	.44805	65
				Total	1.7033	.52736	131
	Total	Married	yes	2.0054	.65505	211	
			no	1.6024	.52548	307	
			Total	1.7666	.61401	518	

Boys	Married	yes	1.8267	.57851	59	
		no	1.5835	.46658	276	
		Total	1.6263	.49595	335	
	Separated/ Divorced	yes	1.7662	.74715	30	
		no	1.5759	.56704	117	
		Total	1.6147	.61014	147	
	Total	Total	yes	1.8063	.63669	89
			no	1.5812	.49787	393
			Total	1.6228	.53275	482
Total	Married	yes	2.0139	.65688	204	
		no	1.5945	.50445	518	
		Total	1.7130	.58282	722	
	Separated/ Divorced	yes	1.8028	.63045	96	
		no	1.5793	.52637	182	
		Total	1.6565	.57332	278	
	Total	Total	yes	1.9463	.65496	300
			no	1.5905	.50990	700
			Total	1.6973	.58046	1000

Section C : Complementary MANCOVA Tables for Non- Married Mothers

Table.16 Descriptive Statistics Non Married Mothers

v2 Sex		v244 Have You Ever Thought of Suicide in Past 12 Months?	Mean	Std. Deviation	N
Bonding	Girls	yes	51.6269	10.62136	67
		no	56.5147	9.14313	68
		Total	54.0889	10.16760	135
	Boys	yes	51.2121	12.39142	33
		non	55.9587	8.49156	121
		Total	54.9416	9.61700	154
	Total	yes	51.4900	11.17491	100
		no	56.1587	8.71146	189
		Total	54.5433	9.86994	289
Supervision	Girls	yes	23.6418	5.76484	67
		no	27.7647	4.92062	68
		Total	25.7185	5.72329	135
	Boys	yes	22.3030	6.06468	33
		no	25.6116	5.47475	121
		Total	24.9026	5.74942	154
	Total	yes	23.2000	5.86894	100
		no	26.3862	5.36974	189
		Total	25.2837	5.74176	289
Psyc Control	Girls	yes	18.0597	4.09316	67
		no	17.4853	3.58892	68
		Total	17.7704	3.84386	135
	Boys	yes	18.8788	4.62843	33
		no	16.7686	3.42724	121
		Total	17.2208	3.80101	154
	Total	yes	18.3300	4.27125	100
		no	17.0265	3.49381	189
		Total	17.4775	3.82431	289
Tolerance	Girls	yes	13.2388	3.58908	67
		no	13.2059	2.96527	68
		Total	13.2222	3.27739	135
	Boys	yes	13.2121	3.55982	33
		no	12.8264	3.33836	121
		Total	12.9091	3.37883	154
	Total	yes	13.2300	3.56145	100
		no	12.9630	3.20633	189
		Total	13.0554	3.32975	289
Conflict Frequency	Girls	yes	2.2419	.55148	67
		no	2.0474	.49508	68
		Total	2.1440	.53092	135
	Boys	yes	2.1775	.44436	33
		no	2.0245	.49911	121
		Total	2.0573	.49056	154
	Total	yes	2.2207	.51721	100

Conflict Impact	Girls	no	2.0327	.49647	189
		Total	2.0978	.51076	289
	Boys	yes	2.0183	.57912	67
		no	1.8342	.51113	68
	Total	Total	1.9256	.55168	135
		yes	1.9095	.60459	33
	Total	no	1.7084	.53247	121
		Total	1.7515	.55288	154
	Total	yes	1.9824	.58684	100
		no	1.7537	.52701	189
Total		1.8328	.55818	289	

Table.17 Multivariate Test Non-Married Mothers

Effect		F	Hypothesis df	Sig.	Partial Eta Squared	Observed Power(a)
Intercept	Pillai's Trace	503.645(b)	6.000	.000	.915	1.000
	Wilks' Lambda	503.645(b)	6.000	.000	.915	1.000
	Hotelling's Trace	503.645(b)	6.000	.000	.915	1.000
	Roy's Largest Root	503.645(b)	6.000	.000	.915	1.000
Psyc Distress	Pillai's Trace	9.611(b)	6.000	.000	.171	1.000
	Wilks' Lambda	9.611(b)	6.000	.000	.171	1.000
	Hotelling's Trace	9.611(b)	6.000	.000	.171	1.000
	Roy's Largest Root	9.611(b)	6.000	.000	.171	1.000
Sex	Pillai's Trace	2.461(b)	6.000	.025	.050	.826
	Wilks' Lambda	2.461(b)	6.000	.025	.050	.826
	Hotelling's Trace	2.461(b)	6.000	.025	.050	.826
	Roy's Largest Root	2.461(b)	6.000	.025	.050	.826
Suic01	Pillai's Trace	1.991(b)	6.000	.067	.041	.724
	Wilks' Lambda	1.991(b)	6.000	.067	.041	.724
	Hotelling's Trace	1.991(b)	6.000	.067	.041	.724
	Roy's Largest Root	1.991(b)	6.000	.067	.041	.724
Sex * Suic01	Pillai's Trace	.781(b)	6.000	.585	.017	.308
	Wilks' Lambda	.781(b)	6.000	.585	.017	.308
	Hotelling's Trace	.781(b)	6.000	.585	.017	.308
	Roy's Largest Root	.781(b)	6.000	.585	.017	.308

a Computed using alpha = .05

b Exact statistic

c Design: Intercept+adpsyg+asexe+asuic01+asexe * asuic01

Table 18. Tests of Between-Subjects Effects Non Married Mother

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power(a)
Corrected Model	Bonding	4	9.104	.000	.114	.999
	Supervision	4	13.123	.000	.156	1.000
	Psych control	4	10.767	.000	.132	1.000
	Tolerance	4	.334	.855	.005	.125
	Frequency conflict	4	8.033	.000	.102	.998
	Impact conflict	4	8.532	.000	.107	.999
Intercept	Bonding	1	827.210	.000	.744	1.000
	Supervision	1	586.828	.000	.674	1.000
	Psych control	1	246.561	.000	.465	1.000
	Tolerance	1	259.558	.000	.478	1.000
	Frequency conflict	1	196.727	.000	.409	1.000
	Impact conflict	1	116.935	.000	.292	1.000
Psyc Distress	Bonding	1	19.940	.000	.066	.994
	Supervision	1	20.404	.000	.067	.994
	Psych control	1	31.550	.000	.100	1.000
	Tolerance	1	.358	.550	.001	.092
	Frequency conflict	1	21.927	.000	.072	.997
	Impact conflict	1	18.625	.000	.062	.990
Sex	Bonding	1	1.558	.213	.005	.238
	Supervision	1	11.146	.001	.038	.914
	Psych control	1	1.409	.236	.005	.219
	Tolerance	1	.116	.733	.000	.063
	Frequency conflict	1	.051	.821	.000	.056
	Impact conflict	1	.689	.407	.002	.131
Suic01	Bonding	1	3.851	.051	.013	.498
	Supervision	1	10.579	.001	.036	.900
	Psych control	1	.280	.597	.001	.082
	Tolerance	1	.047	.828	.000	.055
	Frequency conflict	1	.574	.449	.002	.117
	Impact conflict	1	.884	.348	.003	.155
Sex * Suic01	Bonding	1	.073	.787	.000	.058
	Supervision	1	.642	.424	.002	.126
	Psych control	1	1.876	.172	.007	.276
	Tolerance	1	.141	.708	.000	.066
	Frequency conflict	1	.300	.584	.001	.085
	Impact conflict	1	.007	.935	.000	.051

a Computed using alpha = .05

b R Squared = .114 (Adjusted R Squared = .101)

c R Squared = .156 (Adjusted R Squared = .144)

d R Squared = .132 (Adjusted R Squared = .119)

e R Squared = .005 (Adjusted R Squared = -.009)

f R Squared = .102 (Adjusted R Squared = .089)

g R Squared = .107 (Adjusted R Squared = .095)

Section D: Complementary MANCOVA Tables for Married Mothers:

Table. 19 Multivariate Tests Married Mother

Effect		F	Hypothesis df	Sig.	Partial Eta Squared	Observed Power(a)
Intercept	Pillai's Trace	1240.728(b)	6.000	.000	.911	1.000
	Wilks' Lambda	1240.728(b)	6.000	.000	.911	1.000
	Hotelling's Trace	1240.728(b)	6.000	.000	.911	1.000
	Roy's Largest Root	1240.728(b)	6.000	.000	.911	1.000
Psyc Distress	Pillai's Trace	25.572(b)	6.000	.000	.174	1.000
	Wilks' Lambda	25.572(b)	6.000	.000	.174	1.000
	Hotelling's Trace	25.572(b)	6.000	.000	.174	1.000
	Roy's Largest Root	25.572(b)	6.000	.000	.174	1.000
Sex	Pillai's Trace	5.659(b)	6.000	.000	.045	.997
	Wilks' Lambda	5.659(b)	6.000	.000	.045	.997
	Hotelling's Trace	5.659(b)	6.000	.000	.045	.997
	Roy's Largest Root	5.659(b)	6.000	.000	.045	.997
Suic01	Pillai's Trace	6.923(b)	6.000	.000	.054	1.000
	Wilks' Lambda	6.923(b)	6.000	.000	.054	1.000
	Hotelling's Trace	6.923(b)	6.000	.000	.054	1.000
	Roy's Largest Root	6.923(b)	6.000	.000	.054	1.000
Sex * Suic01	Pillai's Trace	1.802(b)	6.000	.096	.015	.680
	Wilks' Lambda	1.802(b)	6.000	.096	.015	.680
	Hotelling's Trace	1.802(b)	6.000	.096	.015	.680
	Roy's Largest Root	1.802(b)	6.000	.096	.015	.680

a Computed using alpha = .05

b Exact statistics

Table. 20 Tests of Between-Subjects Effects Married Mother

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power(a)
Corrected Model	Bonding	4	29.994	.000	.141	1.000
	Supervision	4	19.930	.000	.098	1.000
	Psych control	4	28.094	.000	.133	1.000
	Tolerance	4	3.903	.004	.021	.902
	Frequency conflict	4	45.926	.000	.200	1.000
	Impact conflict	4	60.497	.000	.248	1.000
Intercept	Bonding	1	2547.675	.000	.777	1.000
	Supervision	1	1969.093	.000	.729	1.000
	Psych control	1	825.979	.000	.530	1.000
	Tolerance	1	530.051	.000	.420	1.000
	Frequency conflict	1	440.507	.000	.375	1.000
	Impact conflict	1	284.553	.000	.280	1.000
Psyc Distress	Bonding	1	40.118	.000	.052	1.000
	Supervision	1	40.545	.000	.052	1.000
	Psych control	1	56.059	.000	.071	1.000
	Tolerance	1	4.823	.028	.007	.592
	Frequency conflict	1	84.680	.000	.104	1.000
	Impact conflict	1	100.126	.000	.120	1.000
Sex	Bonding	1	.001	.980	.000	.050
	Supervision	1	9.635	.002	.013	.873
	Psych control	1	6.717	.010	.009	.735
	Tolerance	1	12.634	.000	.017	.944
	Frequency conflict	1	2.551	.111	.003	.358
	Impact conflict	1	.275	.600	.000	.082
Suic01	Bonding	1	16.508	.000	.022	.982
	Supervision	1	7.344	.007	.010	.772
	Psych control	1	10.293	.001	.014	.893
	Tolerance	1	.354	.552	.000	.091
	Frequency conflict	1	19.558	.000	.026	.993
	Impact conflict	1	32.305	.000	.042	1.000
Sex * Suic01	Bonding	1	5.523	.019	.007	.651
	Supervision	1	.000	.999	.000	.050
	Psych control	1	.397	.529	.001	.096
	Tolerance	1	3.177	.075	.004	.429
	Frequency conflict	1	1.565	.211	.002	.239
	Impact conflict	1	.000	.995	.000	.050

- a Computed using alpha = .05
- b R Squared = .141 (Adjusted R Squared = .136)
- c R Squared = .098 (Adjusted R Squared = .093)
- d R Squared = .133 (Adjusted R Squared = .128)
- e R Squared = .021 (Adjusted R Squared = .016)
- f R Squared = .200 (Adjusted R Squared = .196)
- g R Squared = .248 (Adjusted R Squared = .244)

Table.21 Descriptive Statistics Married Mothers

	v2 Sex	v244 Have You Ever Thought of Suicide in Past 12 Months?	Mean	Std. Deviation	N
Bonding	Girls	yes	50.6242	10.84502	149
		no	58.3224	8.58743	245
		Total	55.4112	10.20046	394
	Boys	yes	53.8136	10.48394	59
		no	56.6421	7.54272	285
		Total	56.1570	8.17511	344
	Total	yes	51.5288	10.81505	208
		no	57.4189	8.07842	530
		Total	55.7588	9.31268	738
Supervision	Girls	yes	26.1141	4.66228	149
		no	28.8490	4.97099	245
		Total	27.8147	5.02904	394
	Boys	yes	25.5424	5.33473	59
		no	27.5614	5.31612	285
		Total	27.2151	5.36593	344
	Total	yes	25.9519	4.85615	208
		no	28.1566	5.19452	530
		Total	27.5352	5.19388	738
Psyc Control	Girls	yes	18.6443	4.04046	149
		no	16.2000	3.31118	245
		Total	17.1244	3.78994	394
	boys	yes	18.5932	4.22276	59
		no	17.1228	3.39464	285
		Total	17.3750	3.58675	344
	Total	yes	18.6298	4.08278	208
		no	16.6962	3.38463	530
		Total	17.2412	3.69625	738
Tolerance	Girls	yes	11.9128	3.45029	149
		no	11.9143	3.38221	245
		Total	11.9137	3.40373	394
	Boys	yes	13.3729	3.66201	59
		no	12.4456	3.53075	285
		Total	12.6047	3.56540	344
	Total	yes	12.3269	3.56430	208
		no	12.2000	3.46977	530
		Total	12.2358	3.49471	738
Conflict Frequency	Girls	yes	2.3703	.52713	149
		no	1.8881	.54240	245
		Total	2.0705	.58491	394
	Boys	yes	2.2683	.55530	59
		no	2.0033	.51788	285
		Total	2.0487	.53312	344
	Total	yes	2.3414	.53591	208
		no	1.9501	.53196	530
		Total	2.0604	.56109	738

Conflict Impact	Girls	yes	2.2263	.60466	149
		no	1.7134	.55877	245
		Total	1.9074	.62734	394
	Boys	yes	2.0724	.65396	59
		no	1.6750	.46906	285
		Total	1.7432	.52631	344
	Total	yes	2.1827	.62134	208
		no	1.6928	.51235	530
		Total	1.8308	.58779	738

