



# RISK

## **FACTORS ASSOCIATED WITH SUICIDE IN MAURITIUS:**

A CASE CONTROL STUDY

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# *MENU*

**1. Introduction = 0 5 mins**

**2. Methodology = 0 5 mins**

**3. Results = 25 mins**

**4 CONCLUSIONS = 0 5 MINS**

**5. Recommendations = 0 5 mins**

**Total Time = 45mins**

## **EXECUTIVE DETAILS**

**COMMISSIONED: MIN SOC SEC**

**FUNDING : MAURITIUS RESEARCH COUNCIL**

**COORDINATOR/INVESTIGATOR: S A G AMEERBEG**

**TECHNICAL SUPPORT: Dr D POLYCARPE**

**Peer Reviewer: Prof S Rataemane**

**Psychiatrist Consultant**

**SADC/UNODC**

# 1. INTRODUCTION

1. **Suicide: the destructive act of voluntarily taking one's own life.**

2. **Case Control Study :** *an analytical epidemiologic study design in which individuals who have a problem, also called cases, are compared to individuals free of the problem (controls) regarding past exposures with a view to identifying risk factors.*

3. **Odds Ratio:** a measure of association typically used to quantify the strength of association between a potential risk factor (exposure) and an outcome.

OR < 1 suggests a protective factor.

OR = 1 suggests no association.

OR > 1 suggests a risk factor.

## 1.1 SUICIDE RATES WORLDWIDE (WHO, 2004)

**15 MILLION ATTEMPTS YEARLY**

**1 ATTEMPT EVERY 3 SECONDS**

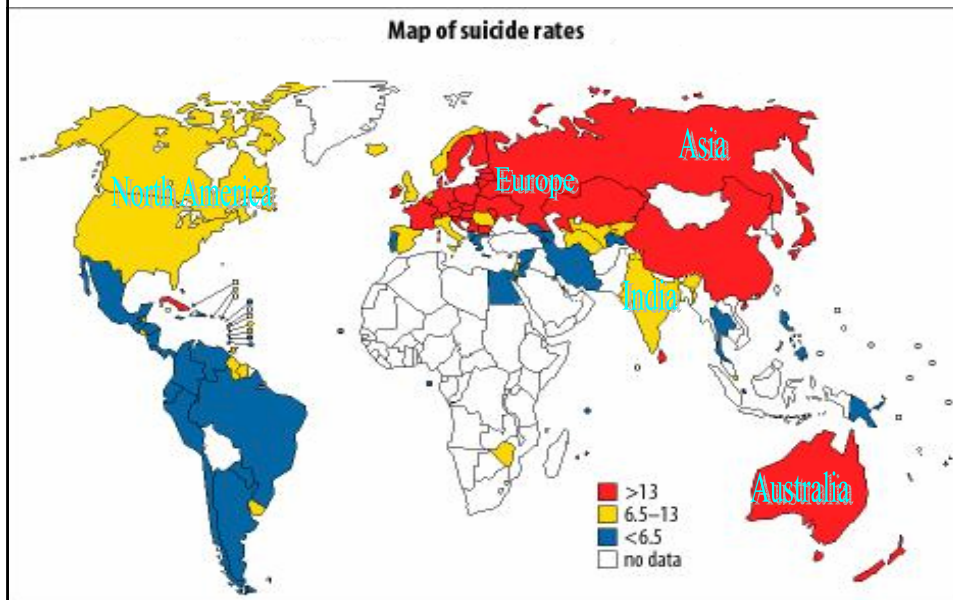
**1 MILLION DEATH**

**1 DEATH EVERY 40 SECONDS**

**15-34 YRS VULNERABLE**

**1 AMONG 3 LEADING CAUSES OF DEATH**

## 1.2 WORLD MAP OF SUICIDE RATES-2004



### MAIN METHODS USED WORLDWIDE

Poisoning

Hanging

Firearms

Ingestion pills/pesticides

Setting fire

Substance misuse

### MAIN FACTORS WORLDWIDE

Prior attempt/deliberate self-harm

Socio-economic problems

Mental illness

Drug/alcohol abuse

## WHY THIS STUDY?

### **GROWING PUBLIC HEALTH PROBLEM**

PUBLIC HEALTH APPROACH = IDENTIFY RANGE OF FACTORS = COMMUNITY INVOLVEMENT

### **UPDATED DATA FOR PROGRAMME DESIGN**

**CASES/CONTROL = ENHANCE RELIABILITY/VALIDITY**

**VIRTUAL VICTIMS/NEAR MISS = MORE VALID DATA**

**Psychological Autopsies = Recall Bias**

## 14 OBJECTIVES

To determine the number of yearly suicide attempts in Mauritius-2003.

To identify life events and psychological factors influencing suicide.

To determine the influence of psychiatric illness on suicide.

To determine the methods used to commit suicide.

To determine the knowledge and use of institutions offering support against suicide.

To make recommendations with a view to reducing suicide, especially among youth in Mauritius.

## 2. METHODOLOGY

**STUDY TYPE:** Population-based, case control study  
Quantitative / qualitative

Data Collection Technique: **Questionnaire=face to face interview**

**Sample Size:** Simple Random sampling method  
Cases/Controls(gender/age/region)  
1 : 2, 400:800 , Random Selection

### DATA COLLECTION/ANALYSIS

40 Youth officers as interviewers=20 either sex=trained

Interviews after 16.00 hrs/weekends

Supervision =5 Senior Youth Officers+Investigator

DATA COLLECTION= Feb/March 05

Data analysis=SPSS 10.0

### 2.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS of RESPONDENTS

	Case		Control	
	n	%	n	%
Community type				
Urban	60	15.0	120	15.1
<b>Rural</b>	<b>340</b>	<b>85.0</b>	<b>680</b>	<b>84.9</b>
Gender				
Male	186	46.5	362	46.5
<b>Female</b>	<b>214</b>	<b>53.5</b>	<b>438</b>	<b>53.5</b>
Age in years				
10 – 14	6	1.5	17	1.5
15 – 19	66	16.5	143	16.5
20 – 24	126	31.5	212	31.5
<b>25 – 40</b>	<b>202</b>	<b>50.5</b>	<b>428</b>	<b>50.5</b>
Marital status				
<b>Single</b>	<b>175</b>	<b>43.8</b>	<b>406</b>	<b>50.8</b>
<b>Married</b>	<b>182</b>	<b>45.5</b>	<b>370</b>	<b>46.3</b>
Consensual union	14	3.5	11	1.4
Divorced/separated/ widowed	29	7.3	13	1.6
Education				
Primary	145	36.3	224	28.0
<b>Secondary</b>	<b>162</b>	<b>40.5</b>	<b>267</b>	<b>33.4</b>
Sc/HSc	77	19.3	261	32.6
Tertiary	13	3.3	45	5.6
Vocational	3	0.8	3	0.4

Occupation				
Unemployed	89	22.3	90	11.3
Student	35	8.8	146	18.3
<b>Wage earner</b>	<b>184</b>	<b>46.0</b>	448	56.0
Homemakers	79	19.8	113	14.1
Businessman	13	3.3	3	0.4
Living with whom				
Both parents	159	39.8	342	42.8
Mother	39	9.8	72	9.0
Father	12	3.0	1	0.1
Grand parents	6	1.5	7	0.9
Adopted child	2	0.5	0	0.0
Alone	5	0.5	9	1.1
<b>My family</b>	<b>177</b>	<b>44.3</b>	369	46.1
Physical disability				
Yes	14	3.7	17	2.2
<b>No</b>	<b>369</b>	<b>96.3</b>	760	97.8

# 3.RESULTS

***Prevalence of Suicide Attempt***



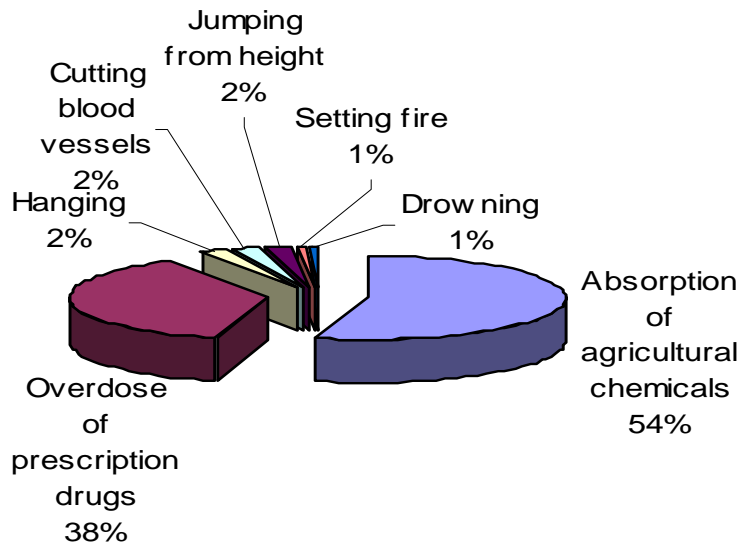
**Rate?**

**HUGE PROBLEM ?**

**LOW RATE ?**

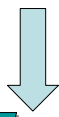
**LOW BURDEN ?**

### 3.1 Method used to attempt suicide

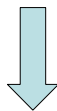


### 3.2 RISK FACTORS

**Individual**



**Family**



**Social**

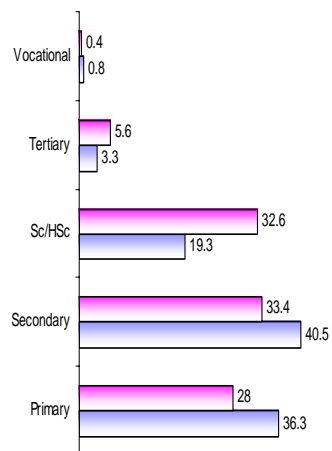


# I.1 Childhood Trauma

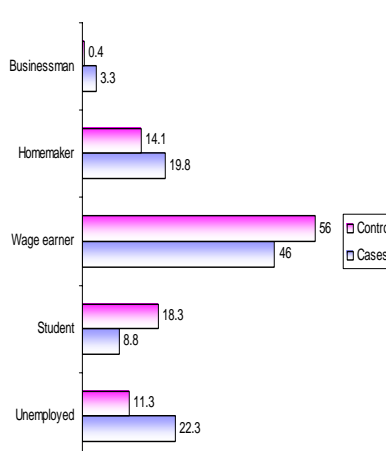
Type of Abuse	Case	Control	Odds Ratio	Confidence Interval (95.0%)
Physical abuse adults	22.3	12.1	2.074	1.510 – 2.848
Physical abuse peers	18.0	16.9	1.081	1.019 – 1.482
Sexual abuse by adults	9.9	3.0	1.282	1.152 – 1.525
Sexual abuse by peers	7.1	2.0	1.286	1.126 – 1.563
Psychological abuse	25.8	23.0	1.011	1.001 – 1.142

# I.2 Socio-Economic Disadvantage

## LOW EDUCATION LEVEL



## UNEMPLOYMENT



## I.3 Losses

Type of Loss	Case	Control	Odds Ratio	Confidence Interval (95.0%)
Physical disability	5.0	4.0	1.696	0.827 – 3.478
Serious accident in childhood	5.0	3.5	1.117	0.638 – 1.956
Parents death in childhood	42.5	37.2	1.249	0.978 – 1.596
Parents death in past 3 years	29.5	20.8	1.144	0.877 – 1.492
Loss of loved persons	20.0	14.1	1.520	1.109 – 2.084
<b>Loss of prestige/ position/self-esteem</b>	<b>29.0</b>	<b>5.8</b>	<b>6.695</b>	<b>4.635 – 9.671</b>
Financial problems	38.0	19.0	2.613	1.998 – 3.417
Fatal disease	2.8	1.3	2.234	0.941 – 5.335
<b>Despised by friends</b>	<b>21.8</b>	<b>4.5</b>	<b>5.899</b>	<b>3.914 – 8.889</b>
<b>Despised by blood relations</b>	<b>26.3</b>	<b>4.3</b>	<b>8.019</b>	<b>5.325 – 12.076</b>
<b>Family disputes</b>	<b>60.3</b>	<b>18.9</b>	<b>6.515</b>	<b>4.986 – 8.511</b>
Breaking of a love affair	22.8	8.8	3.063	2.183 – 4.298
Separated from parents during childhood	13.8	6.9	2.159	1.458 – 3.205

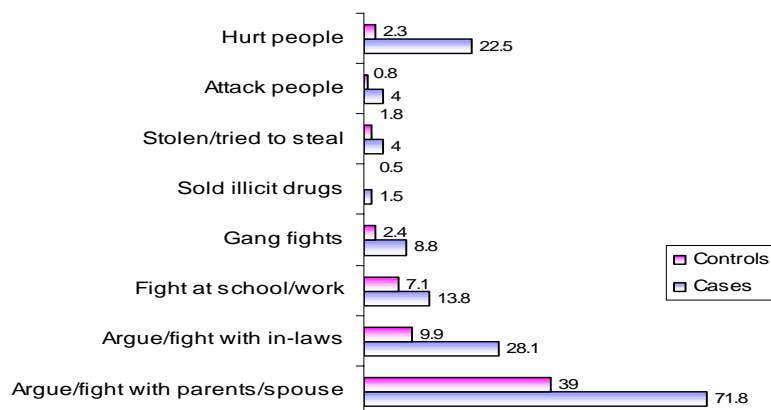
## I.4 Stress

Stressing Element	Case	Control	Odds Ratio	Confidence Interval (95.0%)
Loneliness	5.7	0.3	1.115	1.040 – 1.334
Financial difficulties	10.5	5.4	1.567	0.997 – 2.041
Unemployment	9.6	7.2	1.231	1.020 – 1.421
Family disputes	31.5	10.4	1.494	1.422 – 1.578
Health problems	5.2	1.6	1.319	1.258 – 1.394
Battered wife	2.3	0.9	1.234	0.996 – 2.431

## ***1.5 Substance use***

Use of Substance	Case	Control	Odds Ratio	Confidence Interval (95.0%)
Parents				
Alcohol	66.8	63.9	1.043	0.721 – 1.508
Partners				
Illicit drugs	40.9	35.9	1.237	0.87 – 1.754
Peers				
Alcohol	66.2	60.4	1.287	1.000 – 1.655
<b>Illicit drugs</b>	16.9	8.8	<b>2.118</b>	1.479 – 3.034
High once week	48.4	36.2	1.649	1.291 – 2.105
Respondents				
Alcohol	41.6	30.0	1.003	0.99 – 1.006
Illicit drugs	2.6	1.8	1.008	0.99 – 1.017

## ***1.6 Unsocial behaviour***



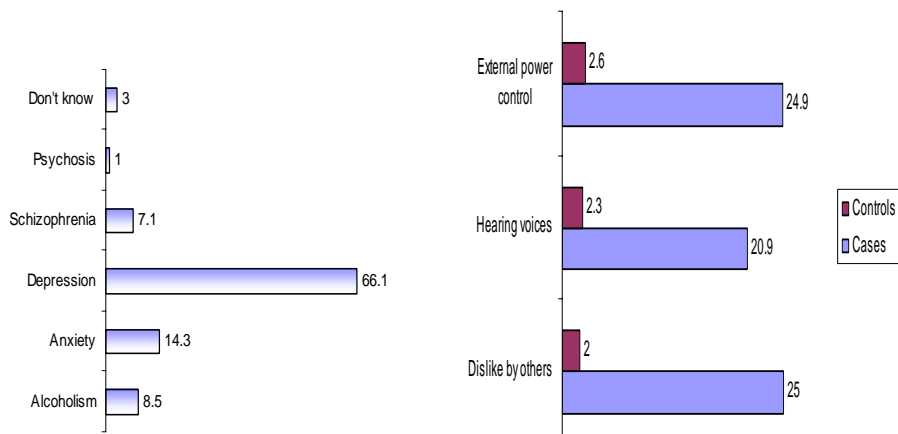
## I.7 Previous Suicide Attempt/Deliberate Self Harm

Suicide Attempt	Case	Control	Odds Ratio	Confidence Interval (95.0%)
<b>Childhood</b>	<b>9.8</b>	<b>0.9</b>	<b>12.23</b>	<b>5.522 – 17.624</b>
<b>Parents</b>	<b>6.3</b>	<b>3.1</b>	<b>2.067</b>	<b>1.171 – 3.647</b>
Blood relatives	10.8	9.6	1.129	0.762 – 1.675
Respondents	34.3	2.5	1.314	0.998 – 2.430
Number of attempt (1-2)	92.3	87.5	1.714	0.204 – 1.399
Time of attempt (1-2 yrs)	75.0	31.1	1.523	0.104 – 2.626
Intent of attempt	17.5	2.5	1.483	0.179 – 2.250

## I.8 Mental illness / Suicidal ideation

Mental Illness=14.3%

Mental Symptoms



Thoughts about suicide, referred as suicidal ideation=24.6%

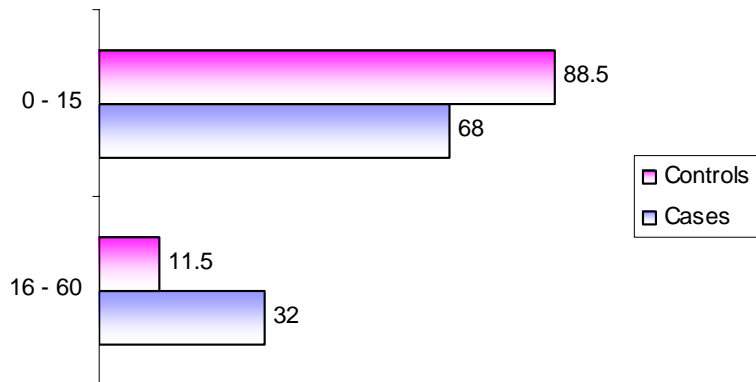
**THE 20-ITEM CES DEPRESSION SCALE OF L S RADLOFF.**

Q401. During the past week preceding the attempt, did you experience the following?:

- 1.Rarely (<1 day) 2.Sometimes (1-2 days) 3.Occasionally (3-4 days) 4.Most Times (5-7 days)
- You were bothered by things that don't bother you.
  - You did not feel like eating; your appetite was poor.
  - You felt that you could not shake off the blues even with the help from your family or friends
  - You had trouble keeping your mind on what you were doing.
  - You felt depressed.
  - You felt that you were just as good as other people
  - You felt that people disliked you.
  - You felt hopeful about the future
  - You tried to do things that you usually do
  - You were restless
  - You were happy
  - You talked less than usual
  - You felt lonely.
  - People were unfriendly.
  - You enjoyed life
  - You had crying spells
  - You felt sad.
  - You felt that everything you did was an effort
  - You could not get going.

**Score 16-60 = Depression**

**1.9 Depression-CES**

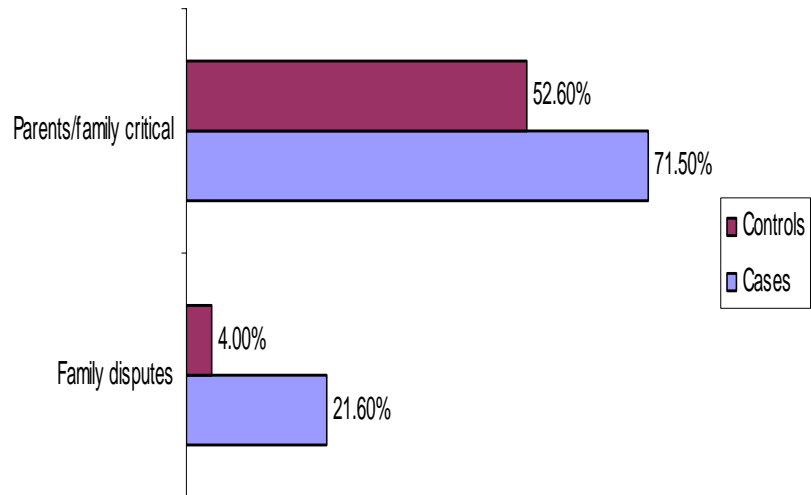


## I.10 Co- Variates of Depression

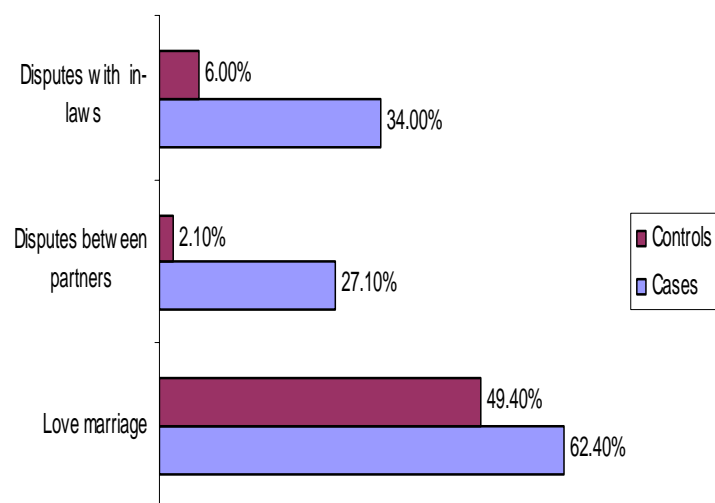
Variables	%	Odds Ratio	95% Confidence Interval	P<0.05
Low education	69.4	1.333	1.048 – 1.693	0.020
Unemployment	18.7	2.003	1.427 – 2.811	0.001
Physical abuse by adults	19.2	1.910	1.372 – 2.660	0.001
Sexual abuse by peers	7.0	2.076	1.201 – 3.588	0.010
Psychological abuse	24.4	2.078	.903 – 4.779	0.010
<b>Suicide attempt</b>	<b>6.1</b>	<b>5.802</b>	<b>2.441 – 13.792</b>	<b>0.001</b>
<b>Parents commit suicide</b>	<b>5.9</b>	<b>3.052</b>	<b>1.548 – 6.019</b>	<b>0.001</b>
Parents die	46.0	1.954	1.539 – 2.481	0.001
Parents incarcerated	10.5	1.820	1.282 – 2.584	0.001
<b>Mental illness</b>	<b>3.2</b>	<b>4.449</b>	<b>1.518 – 13.041</b>	<b>0.004</b>
Lost loved person	20.5	2.163	1.552 – 3.013	0.001
<b>Loss of prestige</b>	<b>22.7</b>	<b>11.958</b>	<b>6.697 – 21.352</b>	<b>0.001</b>
<b>Financial problems</b>	<b>34.2</b>	<b>3.059</b>	<b>2.294 – 4.080</b>	<b>0.001</b>
Fatal disease	2.4	2.686	.978 – 7.379	0.049
<b>Despised by friends</b>	<b>17.5</b>	<b>14.189</b>	<b>6.862 – 29.342</b>	<b>0.001</b>

Variables	%	Odds Ratio	95% Confidence Interval	P<0.05
Despised by blood relations	19.8	14.636	7.369 – 29.070	0.001
Family disputes	47.2	5.022	3.794 – 6.648	0.0001
Separated from parents	11.7	2.052	1.342 – 3.138	0.001
Disputes among parents	14.3	2.338	1.406 – 3.888	0.001
Critical parents	66.2	1.952	1.546 – 2.465	0.0001
Partners use drugs	43.6	1.807	1.280 – 2.551	0.001
Partners always dispute	18.9	6.519	2.742 – 15.219	0.0001
Argue/fight parents/spouse	66.2	2.287	1.981 – 2.640	0.001
Argue /fight in-laws	23.6	2.407	1.810 – 3.202	0.0001
Serious fight school/ workplace	12.8	1.893	1.366 – 2.625	0.001
Gang fight	6.7	2.512	1.430 – 4.410	0.001
Stealing	6.7	2.299	1.121 – 4.715	0.005
Attack people	2.9	2.517	1.035 – 6.120	0.010
Hurting people	14.9	5.271	2.912 – 9.543	0.001

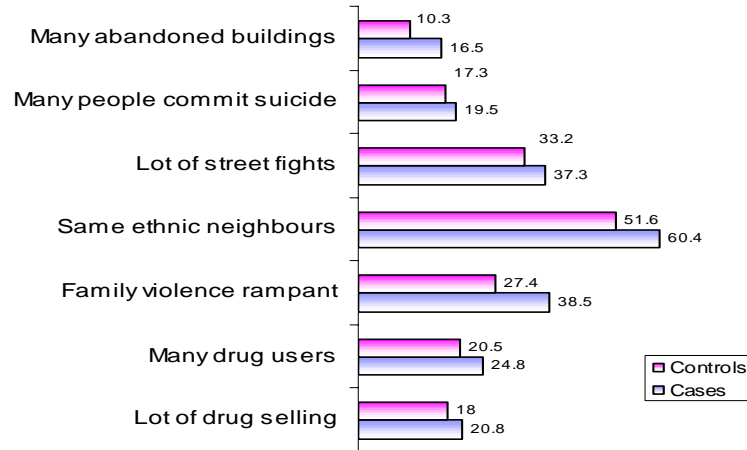
## F.1 Family relationships



## F.2 Marital relationships



## S.1 Adverse environment



## 3.3 PROTECTIVE FACTORS

**Individual**



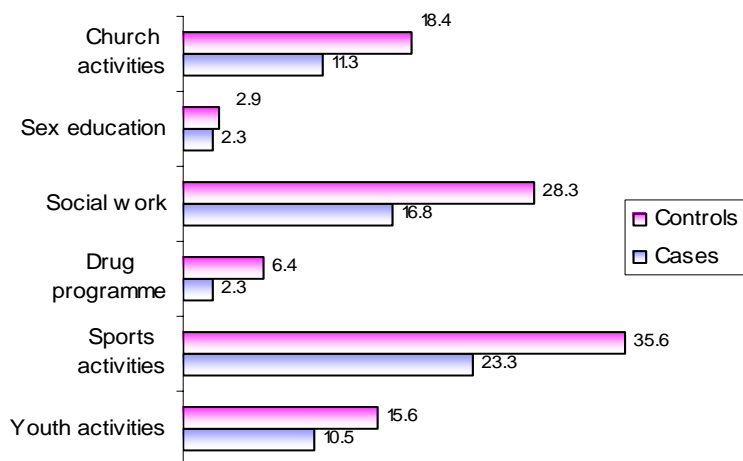
**Family**



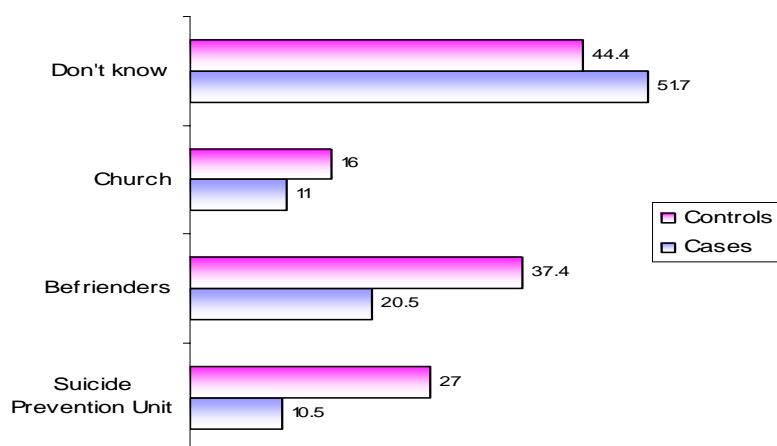
**Social**



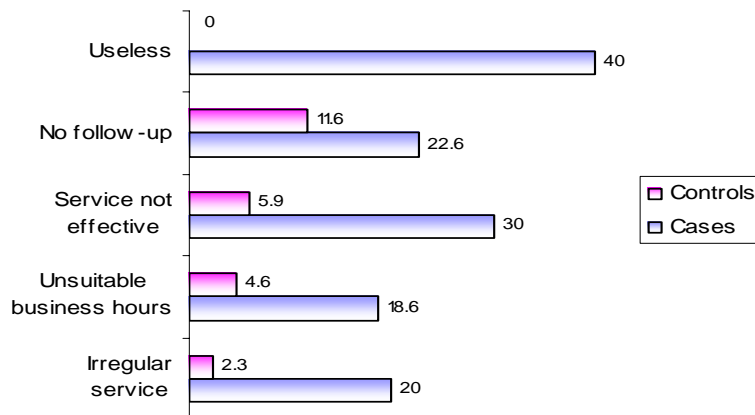
## ***1.1 Participation in social activities***



## ***1.2 Knowledge/use of support***

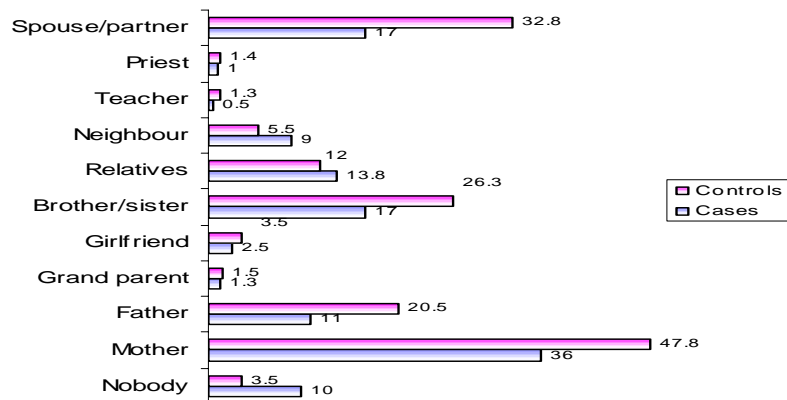


### I.3 Quality Support/Service

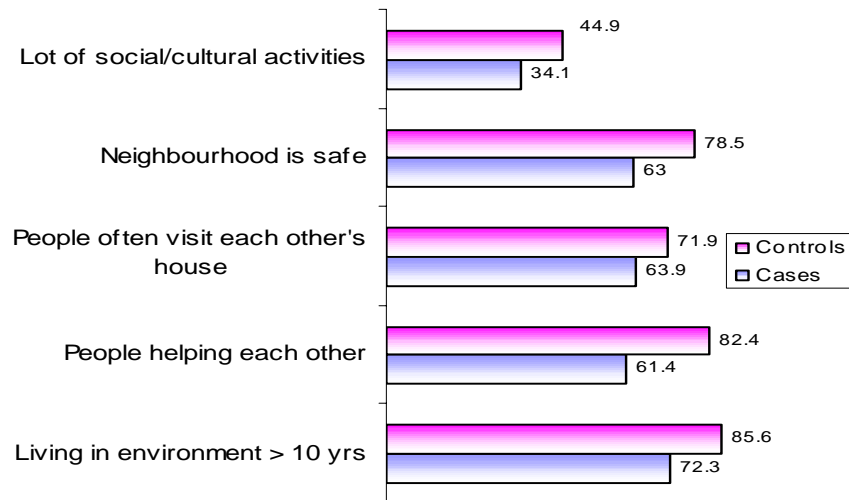


### F.1 Parental communication patterns

PARENTS SHOWING CONCERN=CONTROLS 87.8% | CASES 24.5%



## S.1 POSITIVE ENVIRONMENTS



# 4. conclusions

## **4.1 MAIN METHODS USED**

ABSORPTION OF AGRICULTURAL CHEMICALS

OVERDOSE OF PRESCRIPTION DRUGS

## **4.2 RISK FACTORS**

1. Dysfunctional family	71.8 %
2. Stress	31.5 %
3. Loss of Prestige/position/self-esteem	29.0%
4. Despised by blood relations/friends	25.0 %
5. Physical abuse	22.3%
6. Socio- economic disadvantage	22.0 %
7. Use of Substance	20.0 %
8. Adverse environment	20.0%
9. Mental illness	14.3 %
10. Previous Suicide Attempt during Childhood	10.0 %

**INTERPLAY OF FACTORS**

## 4.3 PROTECTIVE FACTORS

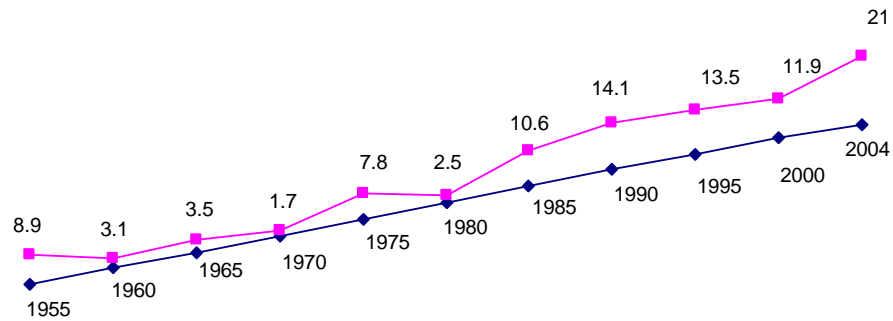
1. Parental/ Family concern	87.8 %
2. Positive environment	85.0 %
3. Knowledge of support	37.4 %
4. Social activities	35.0 %

## INTERPLAY OF FACTORS

### 4.4 PREVALENCE OF SUICIDE IN MAURITIUS-2004 (100,000)

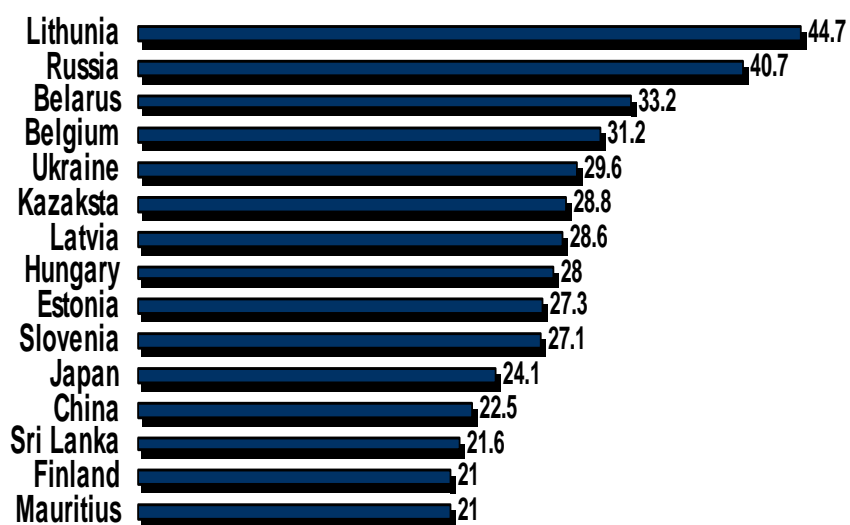
	<i>SUICIDE</i>	<i>ATTEMPT</i>
POPULATION	21	92
MALES	18	83
FEMALES	24	101
<b>DAILY RATE</b>	<b>01</b>	<b>03</b>

## 4.5 SUICIDE TRENDS IN MAURITIUS PER 100,000 (1955-2004).



**15-40 YEARS VULNERABLE**

## 4.6 Suicide Rates Worldwide, WHO-2004



## 5. RECOMMENDATIONS

### 5.1 PRIMARY LEVEL

- Monitor risk behaviour in the community.
- Promote awareness of suicidal tendencies
- Promote public policies to reduce access to methods of suicide.
- Train personnel for suicide prevention.
- Educate public against stigma for substance abuse and mental illness.
- Compile update information on suicidal trends

## **5.2 POST-SUICIDE LEVEL**

- Form suicide survival groups.
- Help families of para-suicidal individuals to deal with attempters.
- Deliver appropriate professional help to survivors of suicide.
- Increase access to appropriate health and welfare facilities for survivors.
- Encourage people with substance abuse problem, suicidal tendencies and mental illness to seek help.

## **ACKNOWLEDGEMENTS**

**COMMISSIONER OF POLICE**

**MINISTRY OF SOCIAL SECURITY  
MAURITIUS RESEARCH COUNCIL  
PROBATION/AFTERCARE SERVICES  
SUICIDE PREVENTION UNIT  
BROWN SEQUARD MENTAL H C C**

**BEFRIENDERS**

**MIN OF YOUTH**

**SUPERVISORS/INTERVIEWERS**



THANK-YOU!