

Screening and Assessment of the Severity of Depression Among Inmates at the Baie-Mahault Correctional Center

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Abstract :

➤ **Background:**

Depression is the most common mental disorder in correctional settings. In the absence of data from the French Caribbean, its prevalence and determinants remain unknown.

➤ **Objectives:**

To determine the overall prevalence, identify factors associated with depression, and investigate determinants related to clinical severity among inmates treated at the SMPR of the Baie-Mahault Correctional Center.

➤ **Methodology:**

A cross-sectional, descriptive, and analytical study conducted from January 2024 to December 2025 at the Baie-Mahault correctional facility. 199 male inmates aged ≥ 18 years, incarcerated for ≥ 1 month, and who completed the PHQ-9 questionnaire.

➤ **Results:**

The prevalence of depression was 52.8% [95% CI 45.8–59.7]. A history of suicide attempts during incarceration was the only factor significantly associated with depression overall, while the independent factors significantly associated with severe depressive symptoms were suicide attempts and suicidal ideation.

➤ **Conclusion:**

More than one in two inmates at the Baie Mahault correctional facility has depression. Systematic screening and improvements in prison conditions are priorities.

Keywords: Depression, PHQ-9, Prison, Mental Health, Guadeloupe, Inmates.

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I. INTRODUCTION

Mental health in prisons is a major public health issue. At least 11% of the 9 million people incarcerated worldwide suffer from severe mental disorders, with depression being the most common form [1,23].

In Europe, 32.8% of prisoners have a mental health disorder. In France, 30.7% of incarcerated men have a mood disorder on the eve of their release [2,5].

In a meta-analysis of 14 studies, several factors were found to contribute to the onset of depression among inmates: these included modifiable factors (environmental, family

support, and psychological factors) as well as non-modifiable factors (social, demographic, individual, and biological factors) that contribute to depression among inmates [18].

No published study documents the situation in Guadeloupe. Available data from Latin American countries show high prevalence rates, ranging from 48.6% in Brazil to 50.2% in Ecuador [3,4].

➤ *Objective:*

To determine the overall prevalence, identify factors associated with depression, and investigate determinants related to clinical severity among inmates followed by the Regional Medical-Psychological Service at the Baie-Mahault correctional facility,

II. METHODS

➤ *Study Type and Period*

This was a cross-sectional, descriptive, and analytical study. Data collection took place from January 2024 to December 2025.

➤ *Study Setting*

Baie-Mahault Correctional Facility in Guadeloupe. The Regional Medical-Psychological Service provides psychiatric and psychological care for inmates.

➤ *Rationale for the Study Site*

The Baie-Mahault Correctional Facility is the only correctional facility in Guadeloupe.

To date, no study has documented the prevalence of depression in this facility, which justifies the choice of this site to generate usable local data.

➤ *Sampling Method*

All inmates who were treated at the Regional Medical-Psychological Service during the study period and who met the inclusion criteria were included.

➤ *Ethical Considerations*

All data were collected anonymously using a pre-designed questionnaire, and written informed consent was obtained from the inmates after a full explanation of the study's purpose.

➤ *Data Source:*

We conducted our search on PubMed Central using the following terms and keywords: Mental health, Guadeloupe, depression, PHQ-9, prison, inmates

➤ *Statistical Analysis*

- Final sample: $n = 199$ participants (no missing data on the primary variable).
- Distribution: The PHQ-9 score is not normally distributed (Shapiro-Wilk test: $W = 0.929$, $p < 0.001$) and exhibits positive skewness (Mean = 6.4; Median = 5). Nonparametric tests were consistently used.

- Bivariate tests: Spearman's correlation coefficient (ρ) for continuous variables; point-biserial correlation (rpb) for the continuous score versus binary variables.
- Qualitative cross-tabulation: Pearson's chi-square test (under Cochran's conditions), Fisher's exact test, or Monte Carlo simulation.
- Multivariate modeling: binary logistic regression (for severe depression ≥ 15), multiple linear regression (for continuous PHQ-9 score). Significance level set at 0.05.

➤ *Selection Criteria*

• *Inclusion Criteria*

The following inmates were included:

- ✓ Males aged 18 years and older,
- ✓ Incarcerated for more than one month,
- ✓ Under care at the Baie-Mahault SMPR,

• *Exclusion Criteria*

The following inmates were excluded:

- ✓ Who did not have sufficient proficiency in French to complete the questionnaire,
- ✓ Minors,
- ✓ Those unable to give consent due to an acute psychiatric disorder,
- ✓ Those assigned to the disciplinary wing

➤ *Data Collection Tools*

Data collection relied on two tools:

A structured questionnaire developed for the study, collecting sociodemographic data, incarceration history, conditions of detention, and personal and family history.

The PHQ-9 (Patient Health Questionnaire-9), a validated 9-item self-report questionnaire assessing the presence and severity of depressive symptoms over the past 2 weeks. The score ranges from 0 to 27.

➤ *Operational Definitions of Variables*

- Depression: PHQ-9 score ≥ 5 .
- Depression: mild 5–9, moderate 10–14, moderately severe 15–19, severe 20–27.
- Severe depressive symptoms: PHQ-9 score ≥ 15 .
- Suicidal ideation: response of ≥ 1 to item 9 of the PHQ-9.
- Unacceptable detention conditions: a “no” answer to the question “Do you consider your detention conditions acceptable?”
- Social and emotional isolation: no visits or telephone contact with family during the previous month.
- Length of pretrial detention: duration in months between the date of incarceration and the date of the judicial interview.

III. RESULTS

➤ Prevalence of Depression and Severe Depressive Symptoms

• Prevalence of Depression (PHQ-9 ≥ 5)

- ✓ Observed prevalence: $p = 105/199 = 0.5276$ (52.8%)
- ✓ Erreur standard : $ES = \frac{\sqrt{0.5276 \times (1 - 0.5276)}}{199} = 0.0354$
- ✓ Margin of error: $ME = 1.96 \times 0.0354 = 0.0694$
- ✓ 95% confidence interval: 95% CI = [45.8% – 59.7%]

➤ Sociodemographic Characteristics

• Prevalence of Severe Depressive Symptoms (PHQ-9 ≥ 15)

Severe depressive symptoms include the categories “moderately severe depression” (PHQ-9: 15–19, $n = 15$) and “severe depression” (PHQ-9: 20–27, $n = 3$), for a total of 18 participants.

- ✓ Observed prevalence: $p = 18/199 = 0.0905$ (9.0%)
- ✓ Erreur standard : $ES = \frac{\sqrt{0.0905 \times (1 - 0.0905)}}{199} = 0.0203$
- ✓ Standard error: $SE = \sqrt{[0.0905 \times (1 - 0.0905) / 199]} = 0.0203$
- ✓ 95% confidence interval: 95% CI = [5.1% – 13.0%]

Table 1 Distribution of Participants by Sociodemographic Characteristics

Variable	Categories	n	%
Age (years)	Mean $\pm$ SE	34.1 $\pm$ 11.8	
	18–24 years	48	24.1
	25–34 years	64	32.2
	Ages 35–44	51	25.6
	45–54 years	20	10.1
	55 and older	16	8.0
Gender	Male	199	100.0
Marital status	Single	163	81.9
	Divorced/separated	28	14.1
	Married	6	3.0
	Widowed	2	1.0
Living with a partner	No	193	97.0
	Yes	6	3.0
Presence of children	Yes	110	55.3
	No	89	44.7
Employment before prison	Yes	132	66.3
	No	67	33.7
Level of education	Illiterate	5	2.5
	Elementary	7	3.5
	Middle School	78	39.2
	High school	88	44.2
	High School Diploma	7	3.5
	College	14	7.0
Origins	Burundian	1	.5
	Canadian	2	1.0
	Dominican	15	7.5
	Spanish	1	.5
	Greek	3	1.5
	Guadeloupean	145	72.9
	Guyanese	2	1.0
	Haitian	15	7.5
	Moroccan-Algerian	3	1.5
	Mainland France	3	1.5
	Polish	1	.5
	Portuguese	2	1.0
	Saint-Martinoise	6	3.0

The sample consisted exclusively of men ($n = 199$). The mean age was 34.1 years (median 32 years), with the largest age group being 25–34 years (32.2%). Single men accounted for 81.9%, and 97.0% were not living with a partner. More

than half had children (55.3%) and were employed prior to incarceration (66.3%). High school graduates were the most represented group (44.2%), and 72.9% of the participants were of Guadeloupean origin.

➤ *Clinical History and Psychoactive Substance Use*

Table 2 Distribution of Participants by Clinical History and Psychoactive Substance Use

Variable	Categories	n	%
Somatic Medical History	Yes	86	43.2
	No	113	56.8
Psychiatric ATCD staff	Yes	54	27.1
	No	145	72.9
Family Psychiatric ATCD	Yes	38	19.1
	No	161	80.9
Suicide attempt	Yes	42	21.1
	No	157	78.9
Psychological trauma (childhood)	Yes	66	33.2
	No	133	66.8
Alcohol consumption	Yes	139	69.8
	No	60	30.2
Tobacco use	Yes	149	74.9
	No	50	25.1
Drug use	Yes	132	66.3
	No	67	33.7
Drug treatment continuity (prison)	Yes	97	48.7
	No	102	51.3

Among the participants, 43.2% had a history of physical illness and 27.1% had a personal history of psychiatric disorders. Suicide attempts were reported by 21.1%, and childhood psychological trauma by 33.2%. Substance use

was widespread: tobacco (74.9%), alcohol (69.8%), and drugs (66.3%). Nearly half of those who used substances continued to do so while incarcerated (48.7%).

➤ *Prison-Related Factors*

Table 3 Distribution of Participants by Prison-Related Factors

Variable	Categories	n	%	Mean ± SE
Type of correctional facility	Detention Center (MA)	128	64.3	
	Detention Center (CD)	63	31.7	
	Isolation Unit (IU)	8	4.0	
Detention Status	Convicted	139	69.8	
	Defendant	58	29.1	
	Unknown	2	1.0	
Incarceration category	First-time inmate	100	50.3	
	Repeat offender	99	49.7	
Length of the combined sentence				
	Sentence length ≤ 10 years	187	94.0	
	Sentence > 10 years	12	6.0	
Type of offense	Misdemeanor	187	94.0	
	Crime	12	6.0	
Seriousness of the offense	Less serious	187	94.0	
	Very serious	12	6.0	
Time to arrest warrant (months)				1.4 ± 1.5
	0 months (unknown)	55	27.6	
	1–6 months	142	71.4	
	7–12 months	2	1.0	
Housing conditions	Unacceptable	139	69.8	
	Acceptable	60	30.2	
Employment in detention	No	159	79.9	
	Yes	40	20.1	
Other activities while in custody	Yes	106	53.3	
	No	93	46.7	

The majority were incarcerated in pretrial detention centers (63.8%) and had the status of convicted offenders (69.8%). The breakdown between first-time offenders and repeat offenders was nearly even (50.3% / 49.7%). The majority of inmates (94.0%) were serving sentences of 10

years or less. Prison conditions were deemed unacceptable in 69.8% of cases. Only 20.1% were employed while incarcerated, and the average length of pretrial detention was 1.4 ± 1.5 months.

➤ Psychosocial Factors and Experienced Violence

Table 4 Distribution of Participants by Psychosocial Factors and Violence Experienced

Variable	Categories	n	%
Assault or violence experienced	Yes	86	43.2
	No	113	56.8
Socio-emotional isolation	Yes	102	51.3
	No	97	48.7
Deprivation of certain rights	Yes	20	10.1
	No	179	89.9
Income or financial support	Yes	105	52.8
	No	94	47.2
Sentencing guidelines	Yes	18	9.0
	No	181	91.0
Sentence reduction	Yes	34	17.1
	No	165	82.9

Socio-emotional isolation affected 51.3% of participants, and 43.2% reported having experienced assault or violence. Deprivation of certain rights was reported by 10.1% of inmates. More than half received an income or

financial support (52.8%). Sentence adjustments remained largely inaccessible (9.0%), as did sentence remissions (17.1%).

➤ Distribution of PHQ-9 Scores

Table 5 Distribution by PHQ-9 Score and Clinical Manifestations

PHQ-9 Score	Variables	N	%	Mean $\pm$ SE
PHQ-9 Categories				6.4 $\pm$ 5.2
	0–4	94	47.2	
	5–9	49	24.6	
	10–14	38	19.1	
	15–19	15	7.5	
	20–27	3	1.5	
Clinical manifestations				
	No depression	94	47.2	
	Mild depression	49	24.6	
	Moderate depression	38	19.1	
	Moderately severe depression	15	7.5	
	Severe depression	3	1.5	
Delirium / hallucinations	Yes	61	30.7	
	No	138	69.3	
Anxious rumination	Yes	196	98.5	
	No	3	1.5	
Suicidal thoughts	Yes	62	31.2	
	No	137	68.8	

The mean PHQ-9 score was 6.4 ± 5.2 ; the most common form was mild depression (24.6%), followed by moderate depression (19.1%). Severe depression ($\text{PHQ-9} \geq 15$) accounted for 9.0% of the sample. Anxious rumination was

nearly universal (98.5%). Suicidal ideation and delusions/hallucinations were present in 31.2% and 30.7% of participants, respectively

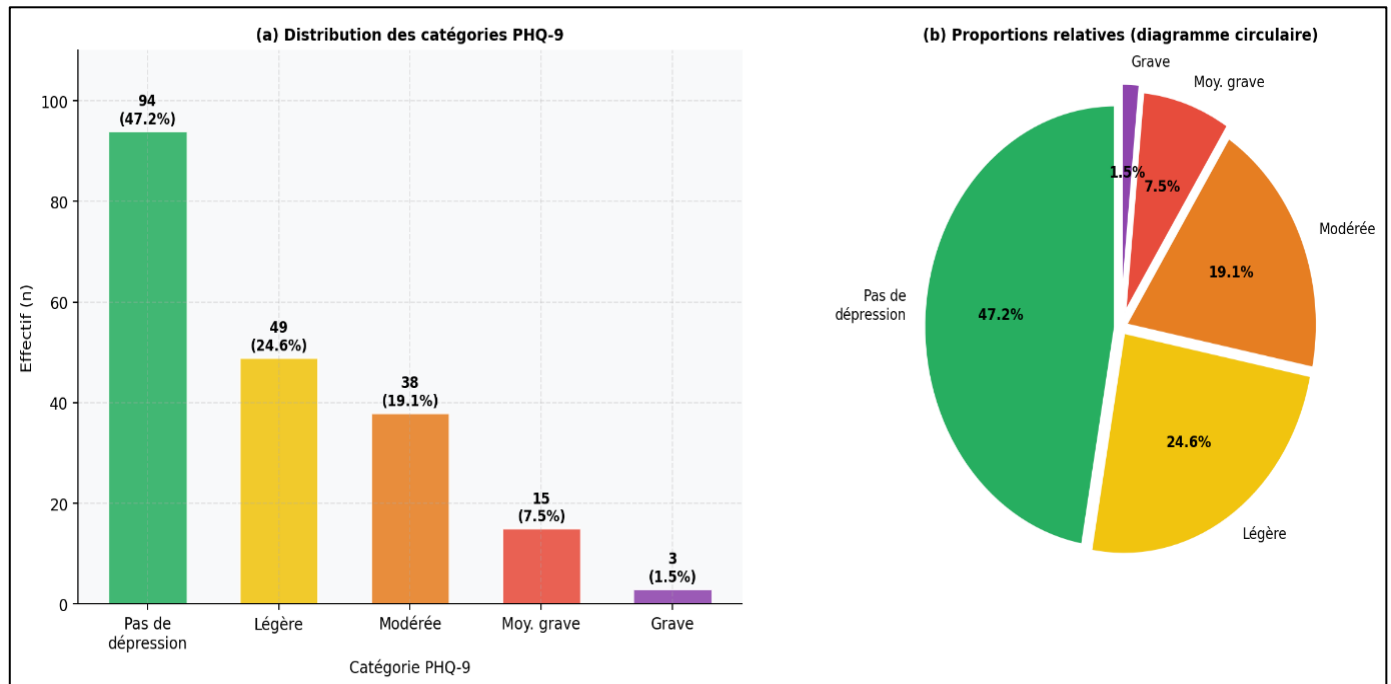


Fig 1 Distribution of PHQ-9 Categories: Bar Chart and Pie Chart

Mild and moderate cases together accounted for 43.7% of the sample. Severe cases (moderately severe + severe) constituted 9.0% of the cases.

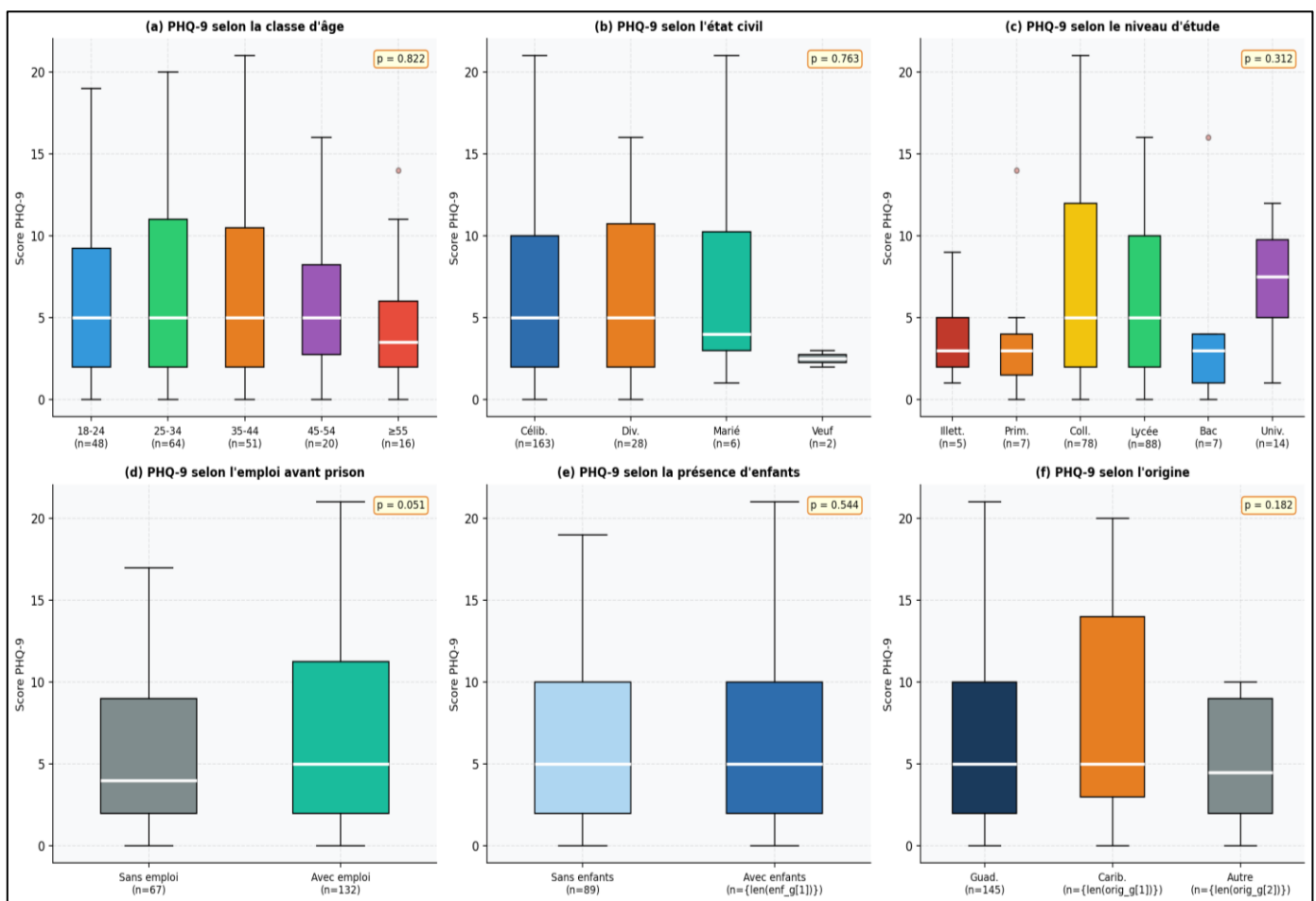


Fig 2 PHQ-9 Score by Sociodemographic Characteristics

(a) Kruskal-Wallis test across age groups: $p = 0.822$ — no significant difference. (b) Kruskal-Wallis test across education levels: $p = 0.312$ — non-significant trend. (c) Stacked bars for employment status prior to incarceration: Chi-square $p = 0.079$ — trend

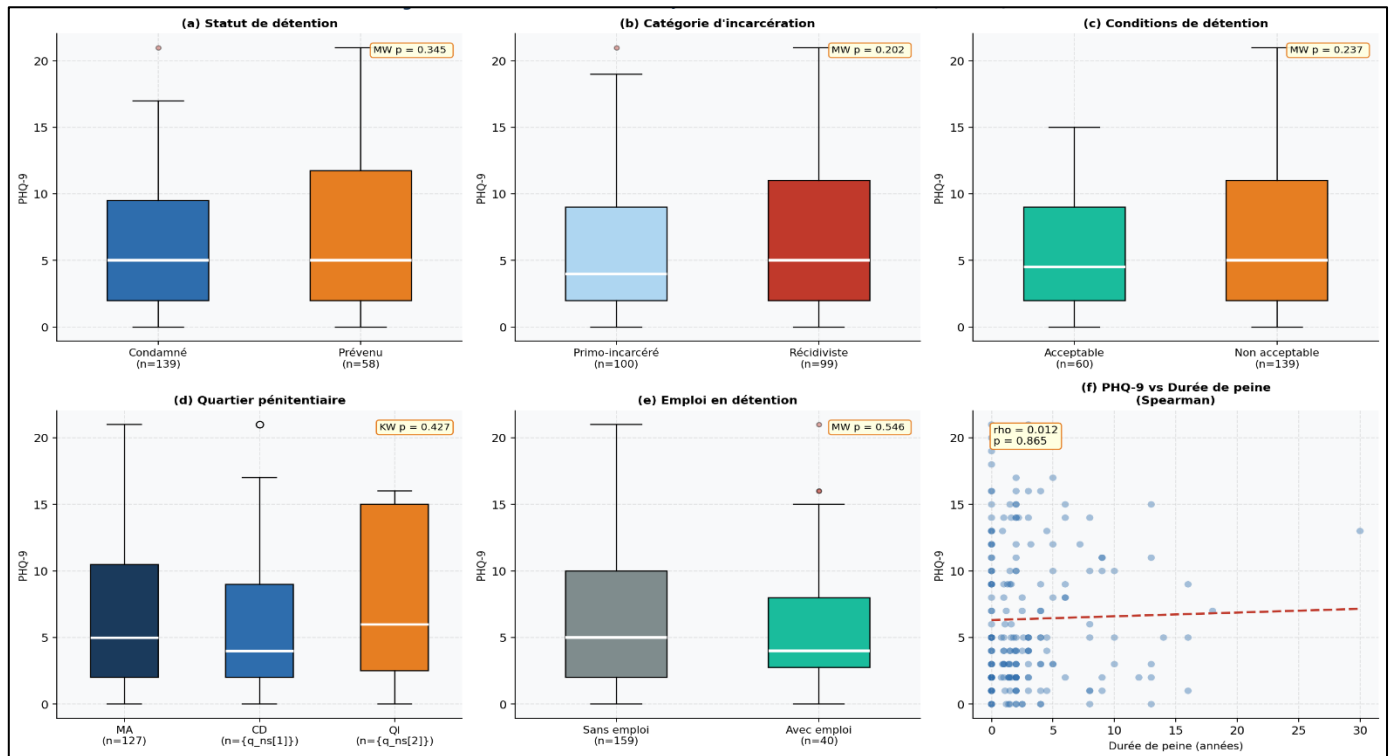


Fig 3 Distribution of the PHQ-9 Score by Prison-Related Factors (n = 199)

Tests: (a) MW detention status $p = 0.345$ — NS. (b) MW first-time offender/repeat offender — NS. (c) MW conditions $p = 0.237$ — NS. (d) KW wing $p = 0.427$ — NS. (e) MW employment status during incarceration — NS. (f) Spearman's rho for sentence length = $+0.012$ — NS. No prison-related factor showed a significant difference in the PHQ-9 score

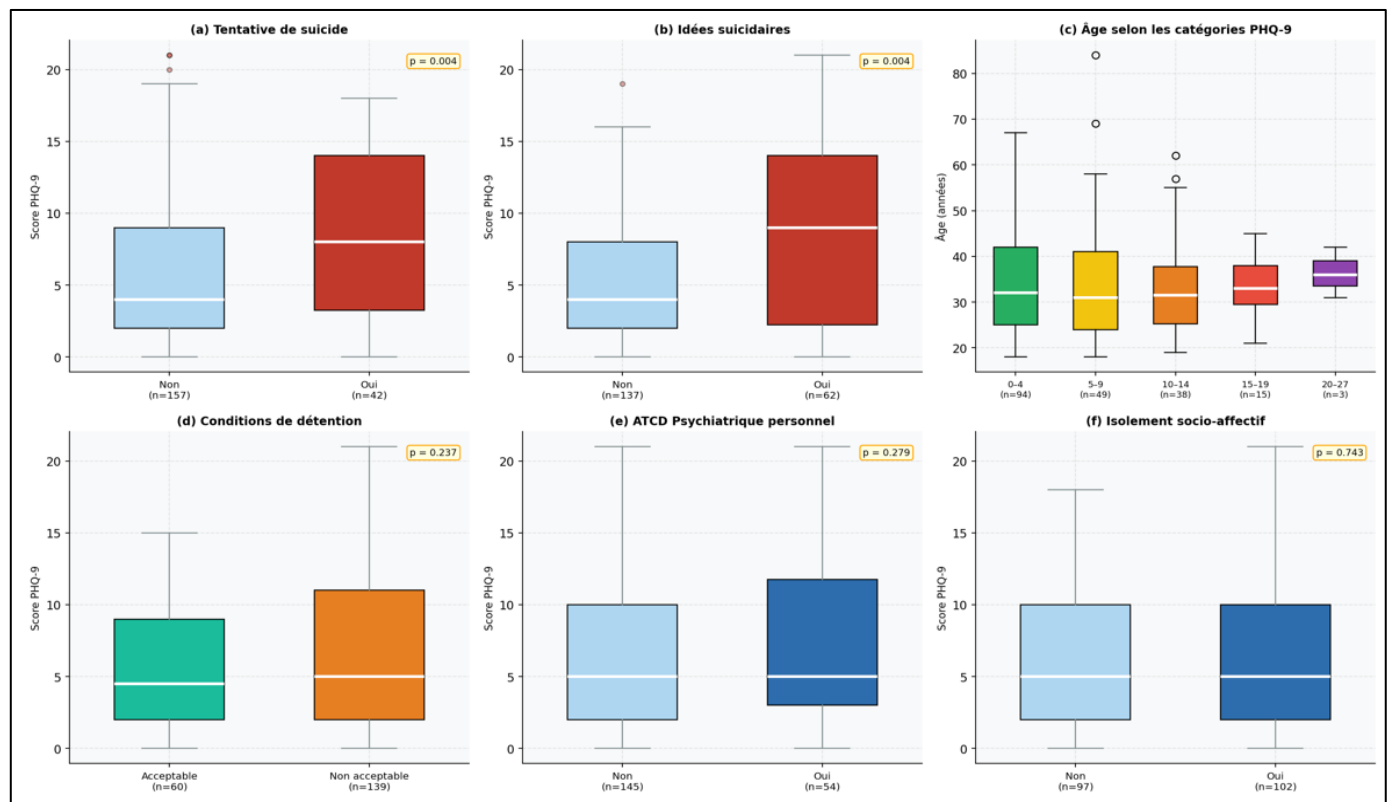


Fig 4 Distribution of the PHQ-9 Score According to the Main Clinical Factors (Comparative Boxplots)

(a) Suicide attempt: Mann-Whitney, $p = 0.004$. (b) Suicidal ideation: Mann-Whitney, $p = 0.004$. Only suicide attempts ($p = 0.004$) and suicidal ideation ($p = 0.004$) are significantly associated with a higher PHQ-9 score. (c) Age by PHQ-9 categories. (d) Detention conditions: $p = 0.237$ — NS. (e) History of psychiatric disorders: $p = 0.279$ — NS. (f) Socio-emotional isolation: $p = 0.743$ — NS.

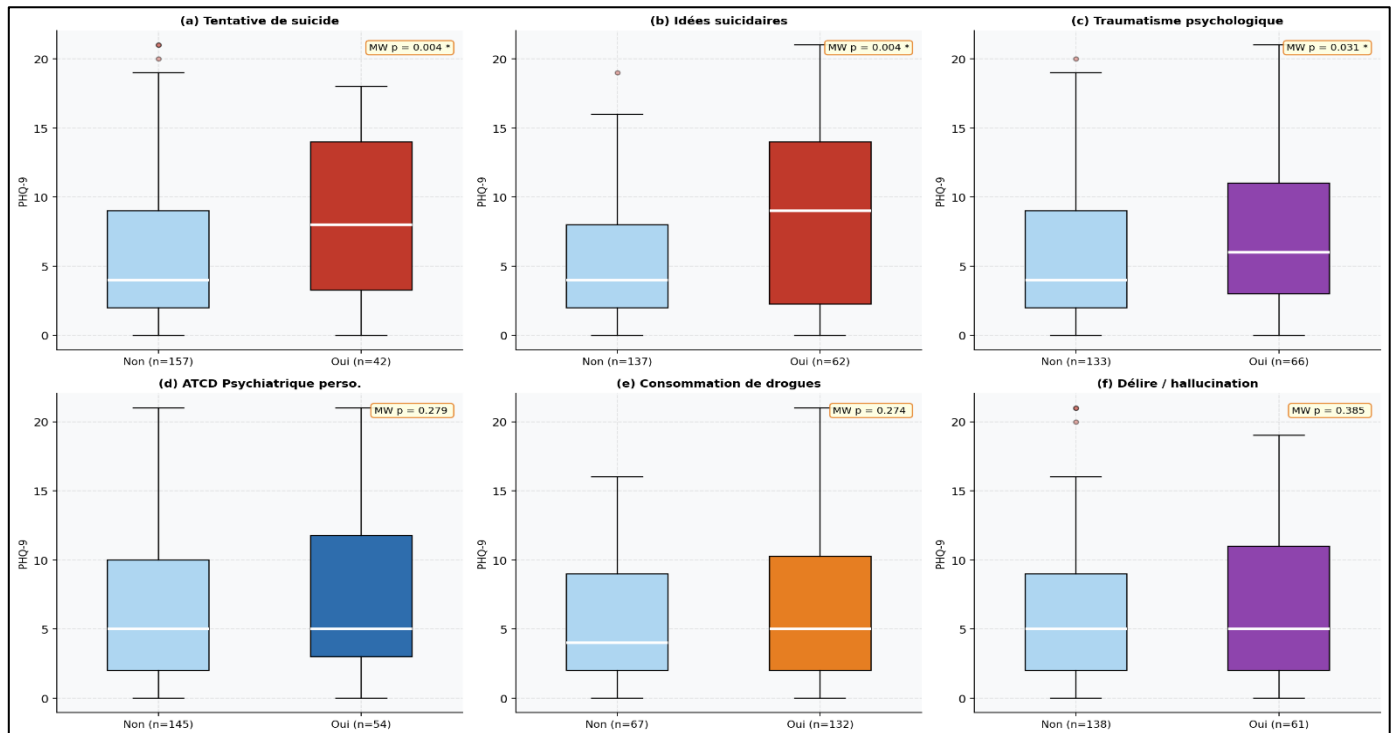


Fig 5 Distribution of the PHQ-9 Score According to Clinical and Addiction-Related Factors (n = 199)

Mann-Whitney tests: (a) suicide attempt $p = 0.004$ *; (b) suicidal ideation $p = 0.004$ *; (c) trauma $p = 0.031$; (d) history of psychiatric disorders $p = 0.279$ — NS; (e) substance use $p = 0.274$ — NS; (f) delirium $p = 0.386$ — NS.

Three clinical factors showed significant differences in the PHQ-9 score: suicide attempt (Mann-Whitney $p = 0.004$), suicidal ideation ($p = 0.004$), and childhood psychological trauma ($p = 0.031$).

➤ Correlation Analyses

• Spearman's Correlations Between Quantitative Variables

Table 6 Spearman's Correlations between the PHQ-9 Score and Quantitative Variables

Variable 1	Variable 2	Spearman's rho	p	Interpretation
PHQ-9	Age	-0.026	0.716	Negligible
PHQ-9	Sentence length	+0.012	0.865	Negligible
PHQ-9	Time to issuance of a committal order	-0.142	0.045	Low
PHQ-9	Severe symptoms (binary)	+0.498	< 0.001	Moderate-severe
Age	Sentence length	+0.113	0.112	Negligible
Sentence length	Term of office	-0.117	0.100	Negligible
Term of office	Severe symptoms	-0.072	0.310	Negligible

✓ Only Two Correlations Were Statistically Significant:

- The time to arraignment was weakly and negatively correlated with the PHQ-9 score ($\rho = -0.142$; $p = 0.045$), suggesting that defendants who waited longer had slightly lower scores.

- The correlation between the PHQ-9 and the "severe symptoms" variable was moderate to strong ($\rho = +0.498$; $p < 0.001$), reflecting the internal consistency of the derived variable. Age ($\rho = -0.026$; $p = 0.716$) and sentence length ($\rho = +0.012$; $p = 0.865$) were not correlated with the PHQ-9.

• Point-Biserial Correlations Between the PHQ-9 Score and Binary Variables

Table 7 Point-Biserial Correlations Between Binary Variables and the PHQ-9 Score

Binary variable	r	95% CI (bootstrap)	p	Intensity
Suicidal ideation	+0.286	[+0.148 – +0.410]	< 0.001	Low-moderate
Suicide attempt	+0.218	[+0.088 – +0.341]	0.002	Low
Psychological trauma (childhood)	+0.157	[+0.021 – +0.289]	0.027	Low
Drug use (prison)	+0.124	[-0.015 – +0.258]	0.081	Low — trend

Drug use	+0.092	[-0.046 – +0.225]	0.196	Negligible
ATCD Psychological Staff	+0.085	[-0.052 – +0.216]	0.230	Negligible
Delusion / hallucination	+0.083	[-0.055 – +0.216]	0.245	Negligible
Alcohol	+0.080	[-0.062 – +0.219]	0.259	Negligible
Family Psychiatrist	+0.041	[-0.101 – +0.180]	0.564	Negligible
Somatic ATCD	+0.032	[-0.109 – +0.168]	0.653	Negligible
Disqualification	+0.019	[-0.124 – +0.157]	0.788	Negligible
Social and emotional isolation	+0.017	[-0.125 – +0.155]	0.807	Negligible
Tobacco	+0.014	[-0.127 – +0.152]	0.849	Negligible
Assault/violence experienced	-0.054	[-0.194 – +0.089]	0.450	Negligible
Employment while in custody	-0.056	[-0.198 – +0.085]	0.434	Negligible

Three variables showed a significant correlation with the PHQ-9: suicidal ideation (rpb = +0.286; 95% CI: +0.148 – +0.410; $p < 0.001$), suicide attempt (rpb = +0.218; 95% CI: +0.088 – +0.341; $p = 0.002$), and childhood trauma (rpb = +0.157; 95% CI: +0.021 – +0.289; $p = 0.027$). Continued

drug use in prison showed a trend (rpb = +0.124; $p = 0.081$). All other variables—psychiatric history, substances, prison-related factors, and violence—showed negligible and nonsignificant correlations ($|r| < 0.13$; $p > 0.05$).

➤ Bivariate Analysis

• Bivariate Analysis of Depression and Sociodemographic Factors

Table 8 Bivariate Analysis of Depression and Sociodemographic Factors

Variable	Categories	Depression n/N (%)	Test	p	Phi	Cramer's V
Age group	18–24 years	26/48 (54.2%)	Chi-square	0.720	0.102	0.102
	25–34 years	33/64 (51.6%)				
	35–44 years	28/51 (54.9%)				
	Ages 45–54	12/20 (60.0%)				
	55 years and older	6/16 (37.5%)				
Marital status	Single	87/163 (53.4%)	Monte Carlo	0.516	0.107	0.107
	Divorced/separated	15/28 (53.6%)				
	Married	3/6 (50.0%)				
	Widowed	0/2 (0.0%)				
Living with a partner	No	102/193 (52.8%)	Fisher	1,000	0.000	0.000
	Yes	3/6 (50.0%)				
Presence of children	No	48/89 (53.9%)	Chi-square	0.877	0.011	0.011
	Yes	57/110 (51.8%)				
Employment before prison	No	29/67 (43.3%)	Chi-square	0.079	0.125	0.125
	Yes	76/132 (57.6%)				
Level of education	Illiterate	2/5 (40.0%)	Monte Carlo	0.077	0.223	0.223
	Primary	2/7 (28.6%)				
	Middle School	42/78 (53.8%)				
	High school	47/88 (53.4%)				
	High School Diploma	1/7 (14.3%)				
	College	11/14 (78.6%)				
Origin	Guadeloupean	75/145 (51.7%)	Chi-square	0.753	0.053	0.053
	Non-Guadeloupean	30/54 (55.5%)				

No sociodemographic variable was significantly associated with depression ($\alpha = 0.05$). Non-significant trends were observed for pre-incarceration employment ($p = 0.079$;

$V = 0.125$) and educational level ($p = 0.077$; $V = 0.223$). Participants with a college education had the highest prevalence (78.6)

➤ Bivariate Analysis of Depression in Relation to History, Clinical Factors, and Addiction-Related Factors

Table 9 Bivariate Analysis of Depression and Clinical and Addiction Factors

Variable	Categories	Depression n/N (%)	Test	p	Phi	Cramer's V
Somatic ATCD	No	58/113 (51.3%)	Chi-square	0.748	0.023	0.023
	Yes	47/86 (54.7%)				
Psychiatric History	No	74/145 (51.0%)	Chi-square	0.521	0.045	0.045

	Yes	31/54 (57.4%)				
Family Psychologist	No	84/161 (52.2%)	Chi-square	0.871	0.012	0.012
	Yes	21/38 (55.3%)				
Suicide attempt	No	75/157 (47.8%)	Chi-square	0.011	0.181	0.181
	Yes	30/42 (71.4%)				
Psychological trauma (childhood)	No	65/133 (48.9%)	Chi-square	0.158	0.100	0.100
	Yes	40/66 (60.6%)				
Alcohol consumption	No	29/60 (48.3%)	Chi ²	0.504	0.047	0.047
	Yes	76/139 (54.7%)				
Tobacco use	No	24/50 (48.0%)	Chi-square	0.538	0.044	0.044
	Yes	81/149 (54.4%)				
Drug use	No	32/67 (47.8%)	Chi-square	0.392	0.061	0.061
	Yes	73/132 (55.3%)				
Drug use continuity (prison)	No	50/102 (49.0%)	Chi-square	0.346	0.067	0.067
	Yes	55/97 (56.7%)				
Delirium / hallucinations	No	73/138 (52.9%)	Chi-square	1.000	0.000	0.000
	Yes	32/61 (52.5%)				
Anxious rumination	No	0/3 (0.0%)	Fisher	0.104	0.089	0.089
	Yes	105/196 (53.6%)				
Suicidal thoughts	No	68/137 (49.6%)	Chi-square	0.246	0.082	0.082
	Yes	37/62 (59.7%)				

Only suicide attempts were significantly associated with depression (Chi-square; $p = 0.011$; $\Phi = 0.181$ — weak association). Participants with a history of suicide attempts had a prevalence of 71.4% compared to 47.8%. This result is consistent with the significant bivariate correlation identified

($rpb = +0.218$; $p = 0.002$). Childhood trauma showed a trend ($p = 0.158$). No substance use or psychiatric condition was significantly associated with depression in the bivariate analysis.

- Bivariate Analysis of Severe Depressive Symptoms*

Table 10 Bivariate Analysis of the Factors Studied and Severe Depressive Symptoms

Variable	Categories	Severe Symptoms n/N (%)	Test	p	Phi	Cramer's V
Age group	18–24 years	3/48 (6.2%)	Monte Carlo	0.488	0.131	0.131
	Ages 25–34	6/64 (9.4%)				
	35–44 years	7/51 (13.7%)				
	Ages 45–54	2/20 (10.0%)				
	55 years and older	0/16 (0.0%)				
Level of education	Illiterate	0/5 (0.0%)	Monte Carlo	0.062	0.230	0.230
	Primary	0/7 (0.0%)				
	Middle School	13/78 (16.7%)				
	High School	4/88 (4.5%)				
	High School Diploma	1/7 (14.3%)				
	College	0/14 (0.0%)				
Origin	Guadeloupean	11/145 (7.6%)	Monte Carlo	0.032	0.186	0.186
	Non-Guadeloupean	7/54 (19.4%)				
Suicide attempt	No	8/157 (5.1%)	Fisher	0.001	0.245	0.245
	Yes	10/42 (23.8%)				
Somatic ATCD	No	7/113 (6.2%)	Chi-square	0.175	0.096	0.096
	Yes	11/86 (12.8%)				
Psychological trauma (childhood)	No	9/133 (6.8%)	Chi-square	0.184	0.094	0.094
	Yes	9/66 (13.6%)				
Drug use	No	3/67 (4.5%)	Chi-square	0.181	0.095	0.095
	Yes	15/132 (11.4%)				
Suicidal thoughts	No	5/137 (3.6%)	Chi-square	< 0.001	0.261	0.261
	Yes	13/62 (21.0%)				
Delirium / hallucinations	No	9/138 (6.5%)	Chi-square	0.110	0.113	0.113

	Yes	9/61 (14.8%)				
Neighborhood type	MA	11/127 (8.7%)	Monte Carlo	0.036	0.207	0.207
	CD	4/63 (6.3%)				
	IQ	3/8 (37.5%)				
Detention Conditions	Acceptable	2/60 (3.3%)	Chi-square	0.115	0.112	0.112
	Not acceptable	16/139 (11.5%)				
Experienced assault or violence	No	14/113 (12.4%)	Chi-square	0.102	0.116	0.116
	Yes	4/86 (4.7%)				
Detention status	Convicted	10/139 (7.2%)	Monte Carlo	0.306	0.109	0.109
	Defendant	8/58 (13.8%)				
Social and emotional isolation	No	8/97 (8.2%)	Chi-square	0.892	0.010	0.010
	Yes	10/102 (9.8%)				

Four variables were significantly associated with severe depressive symptoms. Suicidal ideation showed the strongest association (χ^2 ; $p < 0.001$; $V = 0.261$ — moderate association); 21.0% of participants with suicidal ideation had severe symptoms, compared with 3.6% of those without. A history of suicide attempt (Fisher; $p = 0.001$; $V = 0.245$ — moderate association) was associated with a prevalence of

23.8%. Non-Guadeloupean origin (Monte Carlo; $p = 0.032$; $V = 0.186$ — weak to moderate) showed a prevalence of 19.4%. The type of prison wing was significant (Monte Carlo; $p = 0.036$; $V = 0.207$), with a particularly high prevalence in QI (37.5%). Educational level showed a trend ($p = 0.062$; $V = 0.230$).

➤ Logistic and Linear Regressions

• Binary Logistic Regression Between Depression and Independent Factors

Table 11 Binary Logistic Regression Between Depression and Independent Factors

Variable	ORa	95% CI	p
Suicidal factors			
Suicide attempt	2.94	1.33–6.47	0.007
Suicidal ideation	1.38	0.68–2.80	0.374
Clinical history			
Psychological trauma (childhood)	1.62	0.82–3.20	0.163
Personal psychiatric history	0.86	0.39–1.92	0.716
Delusion / hallucination	0.85	0.41–1.74	0.653
Psychoactive substance use			
Drug use	1.17	0.60–2.28	0.643
Prison-related factors			
Sentence length > 10 years	1.36	[0.37 – 5.03]	0.645
Unacceptable detention conditions	1.16	0.60–2.25	0.657
Experienced assault or violence	0.96	0.51–1.81	0.901
Occupational and psychosocial factors			
Employment prior to incarceration	1.49	0.76–2.91	0.242
Social and emotional isolation	0.82	0.44–1.52	0.525
Sociodemographic			
Age (in years)	1.00	0.97–1.02	0.814

Suicide attempt was the only factor significantly associated with the presence of depression in the multivariate model, with a 2.94-fold higher risk of being depressed ($\text{PHQ-9} \geq 5$).

• Binary Logistic Regression — Severe Depressive Symptoms

Table 12 Binary Logistic Regression of Factors Associated with Severe Depressive Symptoms

Variable	ORa	95% CI	p
Suicide attempt	5.35	1.62 – 17.68	0.006
Suicidal thoughts	4.300	1.22 – 15.20	0.023
Experienced aggression or violence	0.18	0.04 – 0.70	0.014
Condition: Unacceptable detention	5.67	0.93 – 34.51	0.060

Guadeloupean origin	2.61	0.66 – 10.35	0.173
Somatic ATCD	2.00	0.58 – 6.98	0.275
Psychological Trauma (Childhood)	1.96	0.56 – 6.87	0.292
Delusion / hallucination	1.71	0.47 – 6.16	0.412
Drug use	1.51	0.31 – 7.32	0.609
Level of education (ordinal)	0.99	0.15 – 6.38	0.988
Sentence length > 10 years	0.58	0.03 – 12.88	0.733

Suicide attempts increased the probability of severe symptoms by a factor of 5.35 (ORa = 5.35; 95% CI: 1.62–17.68; $p = 0.006$), while suicidal ideation increased it by a factor of 4.30 (ORa = 4.30; 95% CI: 1.22–15.20; $p = 0.023$), and experiencing aggression or violence was associated with a (ORa = 0.18; 95% CI: 0.04–0.70; $p = 0.014$); Unacceptable detention conditions were close to statistical significance (ORa = 5.67; $p = 0.060$).

The association between experiencing aggression or violence and severe depressive symptoms appears, in the multivariate model, to be a protective factor (ORa = 0.18; 95% CI: 0.04–0.70; $p = 0.014$). This association should be interpreted with caution given the small number of severe events and the risk of overfitting the model.

➤ *Multivariate Linear Regression of the PHQ-9 Score*

Table 13 Multivariate Linear Regression of the PHQ-9 Score (Adjusted $R^2 = 0.108$, $n = 199$)

Variable	Adjusted β	95% CI	p
Suicidal ideation	+3.145	1.473 – 4.817	< 0.001
Suicide attempt	+2.264	0.521 – 4.007	0.011
Psychological trauma (childhood)	+1.450	–0.146 – 3.045	0.075
Time to issuance of a detention warrant	–0.382	–0.842 – 0.078	0.103
Assault or violence experienced	–1.067	–2.594 – 0.460	0.170
Unacceptable detention conditions	+0.991	–0.665 – 2.647	0.239
Anxious rumination	+2.504	–3.329 – 8.337	0.398
Age	–0.025	–0.087 – 0.037	0.425
Level of education (ordinal)	+0.543	–1.284 – 2.369	0.558
Personal psychiatric medical history	–0.441	–2.289 – 1.408	0.639
Delusion / hallucination	–0.346	–2.041 – 1.350	0.688
Somatic Medical History	–0.284	–1.765 – 1.196	0.705
Drug use	–0.160	–1.733 – 1.413	0.841
Social and emotional isolation	–0.152	–1.591 – 1.287	0.835

Suicidal ideation ($\beta = +3.145$; 95% CI: 1.473–4.817; $p < 0.001$) and suicide attempts ($\beta = +2.264$; 95% CI: 0.521–4.007; $p = 0.011$) were the only significant predictors of the

PHQ-9 score, increasing it by 3.1 and 2.3 points, respectively. Childhood trauma showed a trend ($\beta = +1.450$; $p = 0.075$).

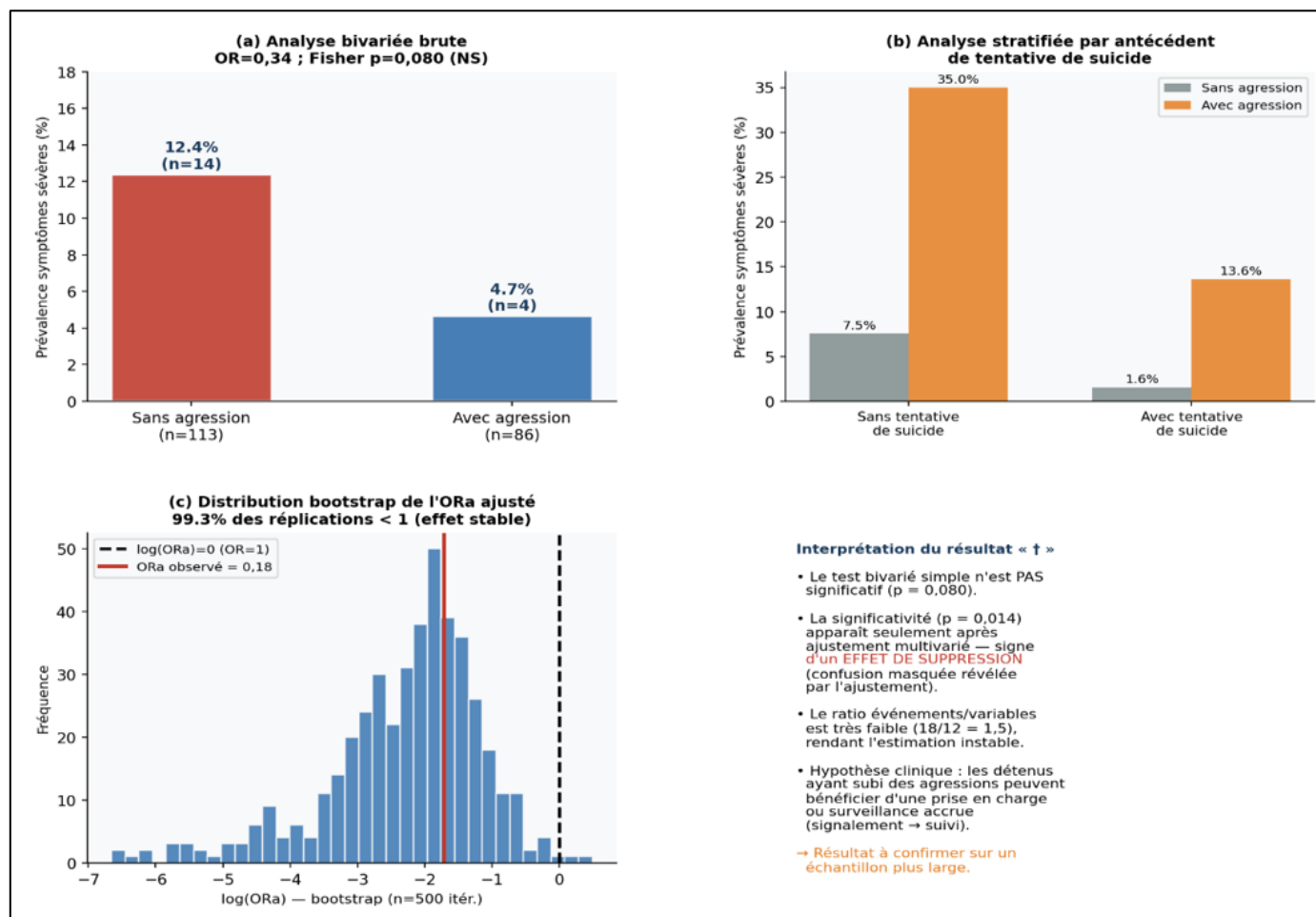


Fig 6 In-Depth Analysis of the Association Between “Experienced Aggression/Violence” and Severe Depressive Symptoms

In the multivariate model, the association between experienced aggression or violence and severe depressive symptoms appears as a protective factor (ORa = 0.18; 95% CI: 0.04–0.70; p = 0.014), a counterintuitive result given the literature on psychotrauma, which generally associates exposure to violence with an exacerbation rather than a reduction in depressive symptoms; A thorough four-step analysis was conducted to explain this paradox, suggesting that a plausible clinical hypothesis is that inmates who reported an assault receive increased identification and support (reporting to administration, enhanced psychological follow-up), which may secondarily mitigate the expression of the most severe symptoms — a mediation hypothesis that warrants qualitative investigation — and that this result should be considered exploratory and confirmed in a larger sample with more severe incidents.

IV. DISCUSSION

➤ Global and French Comparison:

In our study, we found an overall prevalence of depression of 52.8% [95% CI 45.8–59.7] among male inmates at the Baie-Mahault Correctional Facility. This high rate reflects the broader definition of depression: mild, moderate, and severe. Thus, more than one in two

inmates exhibits depressive symptoms. This result is higher than that found in mainland France.

However, this figure far exceeds the overall findings of the meta-analysis by Fazel et al. (2025), in which the prevalence of serious mental disorders in prisons was estimated at approximately 11% worldwide [1], Falissard et al. found a 30.7% rate of mood disorders among incarcerated men nearing release [5]. This significant difference may be explained by the fact that the Guadeloupean correctional facility subjects inmates to considerable stress. A number of identified characteristics—specifically, chronic overcrowding at the Baie-Mahault Correctional Facility and the island’s isolation—may intensify the experience of isolation and vulnerability.

However, the prevalence measured in our study was lower than that reported in Egypt (82.5%). The Egyptian study used a different screening tool (SCL-90) and had a relatively small sample size (n = 80) [22].

➤ Concordance:

There were no previous data on the French Caribbean, so a comparison with the American and African continents is particularly informative. Our

results are consistent with—and even exceed—the prevalence rates reported in numerous South American studies using similar methods. Indeed, the prevalence rate of 52.8% found in Guadeloupe is comparable to the high rates reported in Brazil (48.6%) and Ecuador (50.2%) [3][4]. It is also identical to the prevalence found in prisons in the East Gojjam region, with an overall prevalence of 50.43% (95% CI: 45–55%) [19], as well as to that found in the Wollo region, with a prevalence of 55.5% [20]. This statistical finding, which is so similar to the regional pattern in Latin America—in contrast to the mainland—raises the question of the influence of structural and psychosocial factors specific to overseas territories. Limited access to sentence adjustments (only 9.0% in our sample) and the perception of an “unacceptable” prison environment among nearly 70% of respondents are chronic stressors that may contribute to the development or persistence of depression.

➤ *Paradox:*

The PHQ-9 score was not significantly associated with most prison-related or sociodemographic variables (age, wing type, convicted/pretrial status). This finding has previously been observed in certain prison-based meta-analyses, showing that the simple process of incarceration is significant enough to mask or offset superficial differences at the level of individual prisoners or incarceration logistics [1, 6, 7]. Nevertheless, the weak relationship between length of incarceration and the PHQ-9 score is a crucial clinical lesson. It relates to the concept of “incarceration shock” [10]. Psychological distress is most acute in the first few weeks after being separated from the free environment and entering the criminal justice system. Over the course of several weeks, a form of relative adaptation appears to occur among prison inmates [10, 18].

➤ *The Suicidal Factor:*

Suicide attempts were significantly associated with overall depression ($p = 0.011$); this result is consistent with findings in the literature from prisons in the Amhara Regional State in northwestern Ethiopia [21], while the two independent factors significantly associated with severe depressive symptoms were suicidal ideation and suicide attempts

In our sample, suicidal ideation was present in 31.2% of inmates, and 21.1% of them reported a suicide attempt during incarceration. These figures demonstrate that prison is a powerful catalyst for suicidal trajectories. The positive correlation between childhood psychological trauma and the PHQ-9 score of this type also suggests that the Guadeloupean prison population is characterized by preexisting vulnerability in terms of mental health and that prison acts as a trigger or amplifier of past traumas.

➤ *Length of Pretrial Detention:*

The association between the length of pretrial detention and the severity of depression (Spearman's $\rho = -0.142$; $p = 0.045$) suggests that legal uncertainty is a specific stressor

during pretrial detention. In fact, detainees awaiting trial for an alleged crime were more likely to suffer from depression than those who had already been convicted. This study is similar to one conducted in Malaysia and consistent with data on adjustment disorders during pretrial detention. [9,17].

➤ *Strengths:*

- No study had been conducted prior to ours
- The Baie-Mahault Correctional Facility is the only one in Guadeloupe
- The PHQ-9, a standardized, internationally validated tool
- Inmates were recruited over a long period of approximately 2 years

➤ *Limitations:*

The cross-sectional nature of the study does not allow for establishing causality between the factors studied and the incidence of depression. Furthermore, this is an exclusively male sample representing inmates under follow-up who participated in or were referred to the SMPR; therefore, the selection may be biased.

➤ *Recommendations:*

These results suggest a possible reassessment of management options at the Baie-Mahault SMPR. Given that the predictability of suffering at the onset of detention is inevitable, screening should no longer be conducted on a request-only basis but must henceforth be systematic, standardized, and extremely early (ideally within the first 30 days). The PHQ-9 scale has proven to be a reasonable and rapid means of assessing severity, with good internal consistency.

V. CONCLUSION

The results of this study show that depression was highly prevalent among inmates monitored by the SMPR at the Baie-Mahault Correctional Center, estimated at 52.8% based on the broad definition of depression, while 9.0% exhibited severe depressive symptoms. In the bivariate and multivariate analyses, suicidal factors were identified as the most significant determinant of depressive symptoms. A history of suicide attempts was also positively associated with overall depression, while suicide attempts and suicidal thoughts were strongly associated with severe depression. No other sociodemographic, prison-related, or substance use characteristics remained significantly associated with depression after multivariate adjustment.

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