

## Factors Associated with Depression in Students at The University of the West Indies, Mona, Jamaica

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### ABSTRACT

**Objective:** This project examines the factors associated with depression in students attending the University of the West Indies, Mona Campus.

**Method:** Students enrolled in the Foundation courses during the first and second semesters of the 2005/2006 academic year were administered the Brief Screen for Depression as well as a demographic questionnaire as part of a larger study.

**Results:** A wide cross-section of the university population was sampled ( $n = 690$ ; 252 from semester one, 438 from semester two; 77% females, 23% males; age 16 – 62 years, median = 20 years, mean = 23.4 years  $\pm$  7.4 ). Nearly 40% of students scored in the clinically depressed range. Students in the December wave of data collection had higher depression scores than those in the January wave. Consistent with international research, females reported significantly higher levels of depressive symptoms.

Married students reported significantly lower depression scores than students in visiting relationships. Students who were combining employment and school reported lower depression scores than those who were not employed. Maternal education significantly influenced students' levels of depression such that students whose mothers had university or other tertiary education had lower depression scores while those whose mothers had primary or lower education had the highest depression scores. Students with a chronic condition or a disability scored higher than those without such problems on all three measures of depression.

**Conclusion:** Depression may be a significant problem in students at The University of the West Indies, Mona campus.

## Factores Asociados con la Depresión en Estudiantes del Campus de Mona de la Universidad de West Indies, Jamaica

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### RESUMEN

**Objetivo:** Este proyecto examina los factores asociados con la depresión en estudiantes que asisten a la Universidad de West Indies, Mona Campus.

**Método:** A los estudiantes matriculados en los cursos de Fundación durante el primer y segundo semestres del año académico 2005/2006, se les aplicó la prueba breve para la detección de la depresión así como un cuestionario demográfico como parte de un estudio mayor.

**Resultados:** Se tomaron muestras de una amplia sección transversal de la población universitaria ( $n = 690$ ; 252 del primer semestre, 438 del segundo semestre, 77% hembras, 23% varones, edad 16 – 62 años, mediana = 20 años, media = 23.4 años  $\pm$  7.4). Aproximadamente el 40% de los estudiantes clasificó en el rango clínicamente deprimido. Los estudiantes en la onda de diciembre de la recopilación de datos, tuvieron puntuaciones de depresión más altas que los de la onda de enero. En correspondencia con las investigaciones internacionales, las hembras reportaron niveles significativamente más altos de síntomas de depresión.

Los estudiantes casados – varones y hembras – reportaron puntuaciones de depresión significativamente más bajas que las de los estudiantes con relaciones de visita. Los estudiantes que tenía

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*que combinar la escuela con el trabajo de su empleo, reportaron puntuaciones de depresión más bajas que los que no estaban empleados. La educación materna influía de manera significativa en los niveles de depresión de los estudiantes, de tal modo que los estudiantes cuyas madres tenían educación universitaria o alguna otra educación terciaria, presentaron puntuaciones de depresión más bajas, en tanto que aquellos cuyas madres tenían educación de escuela primaria o más baja, presentaron las puntuaciones de depresión más altas. Los estudiantes con alguna condición crónica o discapacidad anotaron más alto que los que no tenían tales problemas, en las tres medidas de la depresión.*

**Conclusión:** *La depresión puede ser un problema significativo entre los estudiantes del Campus Mona de la Universidad de West Indies.*

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## INTRODUCTION

Depression is considered to be the leading psychiatric disorder among university students (1) and is a major risk factor for students attempting suicide (2). Understandably, considerable research has focussed on depression among university learners in North America especially in the past two decades. These investigations have yielded conflicting results regarding differential prevalence rates between gender and ethnic groups (3). One issue which researchers seem to agree on is the high self-reported incidence of depression among university students when compared with the general population. Factors such as socio-economic difficulties and issues of social support experienced by the learners have been shown to predispose them to depressive symptomatology (4). While the research done in North America among university students is informative and worthwhile, a limited amount of research has been done on the West Indian population (5 – 6) and more specifically university students in the Caribbean (7 – 9) and even less on Jamaican students. Research on high school students in Jamaica suggests that the findings of research in North America and Europe may not be directly or easily applied to the Jamaican social context (10).

Lowe and Lipps (10) found that the features of depression differed by the stream of high school attended by Jamaican adolescents. In Jamaica, students are streamed within and between high schools according to social class and parents' educational attainment (11). Students from the high streams are educated using the prescribed curriculum while their low streamed counterparts are given a lower academic syllabus (11).

Depression scores amongst students attending high streamed schools resembled those in North American high school students. In contrast, learners from the lower streamed schools in Jamaica reported higher depression scores than their high streamed counterparts. In addition, there were no gender differences in depression among students attending low streamed schools while female students attending high streamed schools were significantly more depressed than their male colleagues. Internationally, the latter finding is reflected among high school students (12).

Research done on North American and European university students help us to understand some of the issues faced by college students. However, like their high school counterparts, there are certain characteristics which are

unique to Jamaican university students. One such example is age. Students attending the University of the West Indies at the Mona campus have a higher mean age than their North American counterparts (13, 14). This may be a function of economics such that older adolescents and young adults in Jamaica, wishing to pursue a university education may have to postpone their academic goal for some years until they have earned enough money to pay their tuition and living expenses (15).

Investigation of the factors associated with depression in Jamaican university students is therefore important as it will provide information on a subgroup of college students who may be at high risk for becoming depressed. It will also help to target the university's limited resources to the most vulnerable students. Additionally, research done on Jamaican university students will contribute to the body of knowledge on the factors which lead to depression in late adolescence and young adulthood by extending the research to West Indian populations outside of North America and Europe. This present study aims to determine the factors associated with depression in students enrolled at the University of the West Indies, Mona campus. We hypothesized that students from the lower social classes, as evidenced by maternal education and students' employment status, will be associated with higher levels of depression. In addition, we hypothesized that social class and gender will have a cumulative effect on students' depression scores.

## METHOD

### *Sample*

Students attending The University of the West Indies, Mona, who were enrolled in the Foundation courses during the first and second semesters of the 2005/2006 academic year were administered the Brief Screen for Depression (BSD), along with a demographic questionnaire, as part of a larger study. A wide cross-section of the university population was sampled (n = 690 students; 252 from semester one, 438 from semester two; 77% females, 23% males; age 16 – 62 years, median = 20 years, mean = 23.4 years  $\pm$  7.4). Students sampled in the first semester were administered the questionnaires in December, 2005, while those in the second semester were sampled at the beginning of the semester just after returning from their semester break. Ethical approval for the study was obtained from the Head of the Department of Sociology,

Psychology and Social Work who is responsible for the ethical review and approval of all research in the Department. The study was conducted following the guidelines established for research by the American Psychological Association. In particular, all respondents were asked to provide their written informed consent prior to collection of data.

### Measure

#### *Brief Screen for Depression (BSD)*

The Brief Screen for Depression (BSD: 16) was included in the current project to assess the level of depressive affect among students attending the University of the West Indies. It consists of four simple-to-complete items, each of which assesses one set of depressive symptoms. Scores above 21 on the BSD indicate clinical levels of depression. The BSD has been shown to correlate strongly with other measures of depression (17) and to have acceptable degrees of internal consistency reliability ( $\alpha = 0.63$  to  $\alpha = 0.65$ ; 17). Previous research using a cohort of Jamaican university students has demonstrated that the BSD has acceptable levels of concurrent and discriminate validity (18). In addition, research by Lipps and Lowe (18), using a sample of Jamaican university students, found that the BSD possesses a moderate degree of sensitivity in identifying individuals who may be experiencing clinically significant symptoms of depression. This study found that the prescribed cut-score of 21 could adequately distinguish students who were experiencing clinically significant symptoms of depression (18).

### Procedure

One of the investigators provided a brief introduction to the project at the start of the participants' regular lectures. The project was described as an investigation into the psychosocial factors associated with mood and social relationships. Participants were informed that their participation was completely voluntary and they could withdraw from the project at anytime. The BSD along with a demographic questionnaire were then distributed for completion. Completed questionnaires were returned to one of the investigators at the end of the lecture.

The data were entered into a statistical package (SPSS 14.0) and analysed using t-tests, ANOVA's and multiple regression analyses.

## RESULTS

### *Characteristics of the Sample*

The obtained sample of students roughly matched the population of students attending UWI in terms of gender (Table 1). Nearly seven in every ten students (72.8%) were female with only 21.9% of students being male and 5.4% not reporting their gender. The gender distribution of students at the UWI, Mona, is 72% females and 28% males (19). However, the sample was less representative of all of the faculties of the university. The majority of students in the sample were from either the Faculty of Social Sciences

Table 1: Characteristics of the sample

	Our Sample		UWI Population	
	n	%	n	%
Gender				
Female	502	72.8	5137	71.7
Male	151	21.9	2032	28.3
Missing	37	5.4	–	–
Faculty				
Social Sciences	274	39.7	3349	46.7
Humanities and Education	298	43.2	2065	28.8
Pure and Applied Sciences	39	5.7	1178	16.4
Law	9	1.3	43	0.6
Medical Sciences	30	4.3	534	7.5
Missing	40	5.8	–	–
Year of Study				
First	228	33.0		
Second	302	43.8		
Third	122	17.7		
Missing	38	5.5	–	–
Wave of Data Collection				
December	252	36.5	–	–
January	438	63.5	–	–

(39.7%) or the Faculty of Humanities and Education (43.2%) with smaller numbers of students from the Faculties of Pure and Applied Sciences (5.7%), Medical Sciences (4.3%) and Law (1.3%). In comparison to the overall population of the university, the obtained sample over-represented the Faculty of Humanities and Education and under denoted the Faculty of Pure and Applied Sciences and the Faculty of Medical Sciences. Just under one-half (43.8%) of students were in the second year of their studies while one-third of students (33.0%) were in their first year and 17.7% were in their third year.

### *Number of Students in Clinically Depressed Range*

Based on the guidelines specified for screening people for clinical depression using the BSD, students in the obtained sample of respondents were divided into depressed and non-depressed groups. Nearly four in every ten students (39.1%) had scores on the BSD which suggested that they may be showing signs of serious depression while the majority of students (60.9%) were not depressed.

### *Seasonality of Depression across Semesters I and II*

A distinct difference in levels of depression was found between semesters one and two. Nearly half of all students (47.6%) in Semester I of data collection fell into the clinically depressed range of scores on the BSD while only one in every three students (34.2%) in Semester II of data collection fell into the clinically depressed range of scores.

### *Gender Differences in Depression*

Consistent with international research on depression, female students reported significantly higher mean scores on the BSD (Table 2). Further, results of chi-square analyses suggested that a significantly higher percentage of females than

Table 2: Mean scores on the BSD by gender

		Mean	Sd	t
BSD	Males	17.9	8.0	2.4*
	Females	19.8	9.8	

Note: \*  $p \# 0.05$

males were classed as showing some degree of clinically significant symptoms of depression on the BSD ( $\chi^2 = 4.1$ ,  $p \# 0.05$ ; Table 3).

Table 3: Gender by depression indicator groups

	BSD depression indicator		
	Non-depressed	Depressed	Total
Males	66.2%	33.8%	100.0%
Females	57.0%	43.0%	100.0%

#### Faculty Differences in Depression

The highest scores on all three measures of depression were obtained by students in the Faculty of Social Sciences while those in the Faculty of Medical Sciences had the lowest scores (Table 4). While initial analyses suggested that these

Table 4: Mean scores on the BSD by faculty of study

	BSD	
	Mean	Sd
Social Sciences	20.6	8.7
Humanities and Education	18.8	8.6
Pure and Applied Sciences	17.5	8.5
Medical Sciences	16.0	8.7

differences were statistically significant, they were not significant once gender, employment status, maternal education, season of study, student loan status, exposure to community violence, year of study, marital status and chronic medical conditions were statistically controlled.

Table 5: Faculty by depression indicator groups

	BSD depression indicator		
	Non-depressed	Depressed	Total
Social Sciences	52.9%	47.1%	100.0%
Humanities and Education	62.4%	37.6%	100.0%
Pure and Applied Sciences	71.8%	28.2%	100.0%
Medical Sciences	66.7%	33.3%	100.0%

#### Marital Status and Depression

Students' marital status was associated with both mean depression scores and category of depression (Table 6). Analy-

Table 6: Marital status by mean depression scores

	BSD	
	Mean	Sd
Single	19.5	8.7
Visiting	21.4	9.2
Common Law	19.5	9.4
Married	16.9	8.0

sis of Variance was conducted to examine the association of marital status to mean symptoms of depression. Students who were divorced, widowed or legally separated ( $n = 5$ ) were excluded from these analyses due to their small numbers. Results of the ANOVA indicated that marital status had a statistically significant association with mean depression scores ( $F(3, 636) = 3.29$ ,  $p \# 0.05$ ). Bonferroni post-hoc tests indicated that married students reported significantly lower mean depression scores than students in visiting relationships (Table 6).

The relationship of marital status to category of depression was examined using a series of chi-square analyses. Results of these analyses suggested that marital status was not associated with category of depression BSD ( $\chi^2 = 4.5$ ,  $p \# 0.05$ ; Table 7).

Table 7: Marital status by depression indicator group

	BSD depression indicator		
	Non-depressed	Depressed	Total
Single	57.7%	42.3%	100.0%
Visiting	52.2%	47.8%	100.0%
Common Law	61.8%	38.2%	100.0%
Married	69.1%	30.9%	100.0%

#### Employment Status and Depression

A combination of t-tests and chi-square analyses were conducted to examine if students' employment status was associated with depressive symptoms. Results of the t-tests indicated that students who were combining employment and school reported significantly lower mean depression scores on the BSD (Table 8). Chi-square analyses suggested that

Table 8: Mean scores on the BSD by employment status

	Mean	Sd	t
Employed	17.9	8.3	-3.16*
Unemployed	20.3	8.8	

Note: \*  $p \# 0.05$

there was a significant association between employment status and falling in the clinically depressed range of scores. Examining Table 9, it appears that the percentage of students

Table 9: Employment status by depression indicator group

	BSD depression indicator		
	Non-depressed	Depressed	Total
Employed	68.6%	31.4%	100.0%
Unemployed	55.0%	45.0%	100.0%

who fell into the clinically depressed range of scores on the BSD was higher for unemployed students than for students who combined employment and school.

*Maternal Education and Depression*

Students whose mothers had achieved university or some other form of tertiary education had lower mean depression scores on the BSD (Table 10). To examine if these differ-

Table 10: Maternal education by mean depression scores

	BSD	
	Mean	Sd
Primary or less	20.5	9.8
	19.9	8.8
Secondary	19.4	7.9
	18.0	8.3
Trade/Vocational	18.0	8.3
	18.0	8.3
University and Other Tertiary	18.0	8.3
	18.0	8.3

ences were statistically significant, a series of one way ANOVA analyses was conducted. Results of these analyses indicated that maternal education had statistically significant association with students' depression scores on the BSD ( $F(3, 637) = 2.70, p \# 0.05$ ). Results of the chi-square analyses however, did not find a relationship between maternal education and the percentage of students falling into the non-depressed and depressed range of scores on the BSD (Table 11).

Table 11: Maternal education by depression indicator group

	BSD depression indicator		
	Non-depressed	Depressed	Total
Males	66.2%	33.8%	100.0%
Primary or less	55.9%	44.1%	100.0%
Secondary	54.8%	45.2%	100.0%
Trade/Vocational	60.2%	39.8%	100.0%
University and Other Tertiary	65.0%	35.0%	100.0%

*Chronic Conditions and Depression*

Students with a chronic condition or a disability scored higher than those without such problems on the BSD ( $t_{(642)} = 2.36, p \# 0.05$ ; Table 12). A series of chi-square analyses was also performed to examine the association of chronic conditions to depression groupings (Table 13). Results of

Table 12: Mean scores on the BSD by presence of a chronic condition or disability

	Mean	Sd	t
No Condition	19.1	8.7	2.36*
Chronic Illness	22.2	9.5	

Note: \*  $p \# 0.05$

Table 13: Presence of a chronic condition or disability by depression indicator group

	BSD depression indicator		
	Non-depressed	Depressed	Total
No condition	60.4%	39.6%	100.0%
Chronic illness	43.1%	56.9%	100.0%

these analyses suggested that a significantly higher percentage of students who had a chronic condition or disability fell into the clinically depressed range of scores on the BSD ( $\chi^2 = 5.77; p \# 0.05$ ).

*Regression analyses*

All of the significant factors were entered in a multiple regression analysis. Result of this analysis indicated that gender, employment status, maternal education, and chronic medical condition all made separate, independent contributions to the prediction of depression scores (Table 14), such

Table 14: Results of the regression analysis

Predictor	B	Beta	t	p
Intercept	16.330	7.650		.000
Gender	1.738	.083	2.204	.028
Season	1.372	.077	1.012	.312
Social Science	2.920	.163	1.417	.157
Humanities	2.325	.130	1.324	.186
Pure and Applied	1.425	.038	.663	.507
Employment Status	-2.416	-.120	-2.848	.005
Student Loan	.424	.023	.582	.561
Live in Violent Area	.281	.012	.306	.760
First Year of UWI	-.013	-.001	-.012	.991
Second Year of UWI	-.404	-.023	-.439	.661
Maternal Education	1.525	.086	2.205	.028
Medical illness	3.164	.096	2.545	.011
Relationship Status	-1.221	-.050	-1.241	.215

that females who were unemployed, with chronic medical conditions, whose mothers had secondary education or less had the highest depression scores.

*Interactions of Significant Variables*

A series of two-way factorial ANOVA was conducted to explore the interactions of those factors found to be statistically related to BSD depression scores. In general, the majority of factors did not significantly combine to influence BSD depression scores. However, faculty of study, season, employment status and intimate relational status all com-

bined to influence BSD depression scores. Faculty of study significantly interacted with both intimate relationship status ( $F(2, 618) = 2.98, p \neq 0.05$ ) and employment status ( $F(3, 537) = 2.57, p \neq 0.05$ ). Students in the Faculty of Social Sciences who were in a stable relationship (married or common-law relationship) were less depressed than students of the same Faculty who were in unstable intimate relationships (single or a visiting relationship). Students in the Faculty of Medical Sciences who were employed reported higher levels of depression than students in other faculties who were unemployed.

Similarly, there was an interactive effect between seasonality and intimate relationship status such that students who were in unstable relationships reported greater symptoms of depression in the December cohort than those in the January cohort ( $F(1, 636) = 5.31, p \neq 0.05$ ). Additionally, there was an interactive effect between season of data collection and employment status such that students who were employed in December reported lower depression scores than those who were not employed.

## DISCUSSION

In general, it appears that the prevalence of self-reported depression within the university student population in the present study was higher (approximately four in every 10 students) than expected in the general population [just under one in every 10 persons] (10). Additionally, it seems depression in this cohort may not have resulted from one specific issue but rather from an accumulation of causes with variations along several key aspects. Of note, the factors of gender, employment status, maternal education, and chronic medical condition all made significant independent contributions to the prediction of depression scores. From this pattern of findings, a profile of depressed students could be created. As expected from the study hypotheses, a depressed student was most likely to be female, unemployed, in an unstable intimate relationship, with a chronic medical illness or disability and whose mother had a secondary education or less.

The role of gender in depression in this study is consistent with studies of depression in other nations (20). Several possible explanations for this gender difference in depression have been proposed (21) including endocrine differences between the genders, women's greater concern with body image and their negative attributional styles.

Educational attainment was used in this project as an indicator of social class. The present study used mothers' level of education due to the nature of Jamaican family structure where many children are born to single mothers, with some having little or no relationship with their fathers (22). Not surprisingly, students whose mothers had attained a post-secondary education reported lower depression scores. Mothers with post-secondary educational levels have better opportunity for upward mobility, generally cope better with stress and are more likely to be financially stable, therefore

they are better able to access help for themselves and their children when needed, hence providing better social support (23). This supports the argument that social class may be contributing to differences in levels of depressive symptoms among students. Previous research in the U K has shown that social class is a strong moderator in the production of depression (24).

Previous research suggests that living with ongoing stressful conditions, such as a chronic medical illness or disability, was associated with higher reported levels of depressive symptoms. Katon *et al* (25) illustrated that the demands of a chronic medical illness cause significant physical and emotional disturbance to the lives of its sufferers precipitating depressive symptoms. However, being in a stable relationship may play a protective role. Research done by Kessler and Essex (26) demonstrated that diminished exposure to stressful life events which occurs in the protective climate of marriage or other long term unions, prevents couples from developing depressive symptoms. Support for this interpretation is provided in the current study where we found that being married or having a stable relationship was associated with lower reported levels of depression among our university student population.

The employment status of the students in the present study was associated with depression such that university learners with the exception of those in the Faculty of Medical Sciences, who were employed, reported lower symptoms of depression. Past research by Martikainen *et al.* (24) has found that employment or lack thereof, is a moderator for depressive affect. One likely explanation for the students in the Faculty of Medical Sciences reporting higher depression scores if employed is the intensive nature of the medical curriculum which diminishes time allotted for extra-curricular activity including part time employment. Students who combine employment and medical school have more stressful schedules which may precipitate increased symptoms of depression. Alternatively, it is possible that combining employment with medical education may exclude students from the peer group activities and bonding that may occur amongst medical students, thereby isolating these individuals, leading to an increased disposition to depression.

As expected, depression was associated with seasonality, with students in the December (Christmas season) wave of data collection reporting more depressive symptoms than those in the January wave. The issues of depression at Christmas time are well recognized in international research (27). Because both months are affected by decreased periods of sunlight, it is unlikely that issues of shorter periods of day light and seasonal affective disorder may have been responsible for the difference in the Caribbean. Additionally, students who reported higher depression scores in the Christmas season were more likely to be single or in unstable unions as well as unemployed. These results are not surprising as Christmas underscores time to be spent with significant relations as well as the practice of gift giving, neither

of which may be enticing to students who are unemployed or who are in unstable relationships. This may lead to increased financial stress as well as feelings of loneliness creating a depressogenic environment.

In conclusion, depression is a significant problem among university students at The University of the West Indies, Mona campus. As a public health initiative, students most at risk should be actively screened for depression especially during the month of December and those falling in the depressed range should be referred to a therapist for clinical evaluation and treatment. The factors which may be considered when deciding who to screen for depression may include gender, employment status, mother's educational level and the existence of a chronic medical illness. In addition, as a primary prevention effort, education on the symptoms, risk factors and simple strategies to prevent depression should be given to all students during the first semester of the university year.

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