



Knowledge Exchange Seminar Series (KESS)

...is a forum that encourages debate on a wide range of research findings, with the overall aim of promoting evidence-based policy and law-making within Northern Ireland



Mental health, self-harm & suicide in university students in Northern Ireland

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The Ulster University Student Wellbeing study

- The WHO World Mental Health International College Student Project (WMH-ICP).
- A longitudinal study to identify risk and protective factors for mental health and wellbeing in the student population.
- Recruitment at 1st registration across 4 UU campuses (Sep, 2015).
- 1,646 (40%) recruited in year 1 (**739** fully completed).
- On-line survey developed by the WMH consortium.
- DNA collection: A saliva sample was collected from each participant (4ml, using Oragene kits).



Key Findings

	Total (720)	Male (274)	Female (462)	Other (3)	
		%	%	<i>n</i>	χ^2
DEPRESSION	86	24.2%	27.7%	3	6.756**
ANXIETY	73	22.6%	26%	3	6.312*
ALCOHOL DEPENDENCE	49	10.2%	19	0	1.683
	27	11.1	44	1	1.567
	75	4.8	8	0	.329
	23	15	1.7	0	9.102**

Suicidal ideation & behaviour

Did you ever?

- Have thoughts of killing yourself? **31.0%**
 - Make a suicide plan? **19.6%**
 - Engage in self harm? **19.6%**
 - Attempt suicide? **7.7%**
-
- 48.6% of the 7.7% made more than one attempt.
 - 15 attempted suicide in the past year.
 - 257 received automated response informing them about services.
 - 84 triggered alert and were contacted by Carecall (Inspire).

Why? Coping with stress

- Pre-existing mental health problems (self harm)- aggravated during their transition to university.
- The stress of university life.
- Key life transition.
- Exam stress.
- New social life.
- Self directed learning.
- Financial pressure.
- Pressure to excel (social perfectionism).
- *"to get relief from a terrible state of mind"*

Rasumssen et al. (2016) N=987.

Predictors of mental illness & suicidal behaviour

Demographics		Lifetime Mood	Lifetime GAD	Suicide Ideation	Suicide Plan	Suicide Attempt	Self-Harm
N = 739		(n=186)	(n=173)	(n=237)	(n=149)	(n=60)	(n=151)
		OR	OR	OR	OR	OR	OR
		(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)	(95% CI)
Gender							
Female	(462)	1.604*	1.627*	1.803**	1.380	1.605	2.363***
		(1.1-2.4)	(1.1-2.4)	(1.3-2.6)	(0.9-2.1)	(0.9-3.0)	(1.5-3.7)
Male	(274)	1.0	1.0	1.0	1.0	1.0	1.0
Age							
21 and over	(178)	1.784**	1.243	1.256	1.462	2.019*	0.623
		(1.2-2.7)	(0.7-1.9)	(0.8-1.9)	(0.9-2.2)	(1.1-3.7)	(0.4-1.0)

LGBT

Mood disorders
2.915

Anxiety
3.553

Suicide ideation
5.366

Suicide plan
5.934

Suicide attempt
5.835

Self harm
5.404

ACEs

Moderate
High

Mood disorder
2.944
3.112

Anxiety
2.949
5.941

Suicide ideation
4.041
8.579

Suicide plan
4.332
8.849

Suicide attempt
2.595
7.945

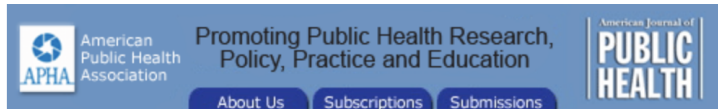
Self harm
2.743
5.532

ns, CI = confidence intervals, significance values * $p < .05$, ** $p < .01$, *** $p < .001$



News > UK > Home News

States which legalise same-sex marriage see drop in LGBT suicide rates, study finds



Am J Public Health. 2010 March; 100(3): 452-459.

doi: [10.2105/AJPH.2009.168815](https://doi.org/10.2105/AJPH.2009.168815)

PMCID: PMC2

The Impact of Institutional Discrimination on Psychiatric Disorders Lesbian, Gay, and Bisexual Populations: A Prospective Study

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[Author information](#) [Article notes](#) [Copyright and License information](#)This article has been [cited by](#) other articles in PMC.

Abstract

Objectives. We examined the relation between living in states that instituted bans on same-sex marriage during the 2004 and 2005 elections and the prevalence of psychiatric morbidity among lesbian, gay, bisexual (LGB) populations.

Methods. We used data from wave 1 (2001–2002) and wave 2 (2004–2005) of the National Epidemic Survey on Alcohol and Related Conditions (N = 34 653), a longitudinal, nationally representative noninstitutionalized US adults.

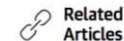
Results. Psychiatric disorders defined by the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition*, increased significantly between waves 1 and 2 among LGB respondents living in states that banned gay marriage for the following outcomes: any mood disorder (36.6% increase), generalized anxiety disorder (248.2% increase), any alcohol use disorder (41.9% increase), and psychiatric comorbidity (36.3% increase). These psychiatric disorders did not increase significantly among LGB respondents living in states without constitutional amendments. Additionally, we found no evidence for increases of the same magnitude among heterosexuals living in states with constitutional amendments.

Conclusions. Living in states with discriminatory policies may have pernicious consequences for the

Difference-in-Differences Analysis of the Association Between State Same-Sex Marriage Policies and Adolescent Suicide Attempts

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JAMA Pediatr. 2017;171(4):350-356. doi:10.1001/jamapediatrics.2016.4529

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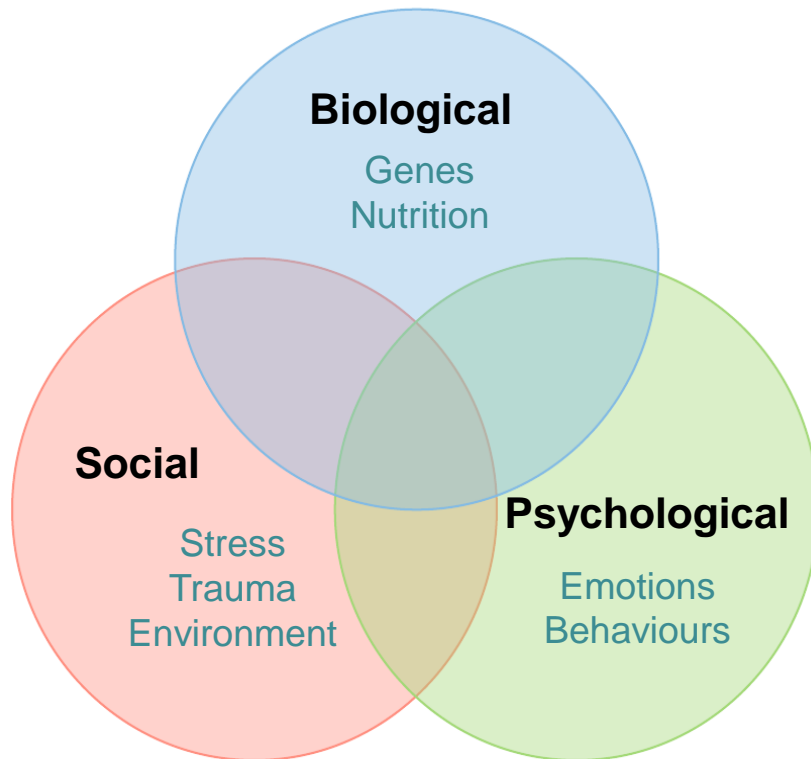
Key Points

Question Are state same-sex marriage policies associated with a reduction in adolescent suicide attempts?

Findings This difference-in-differences analysis of representative data from 47 states found that same-sex marriage policies were associated with a 7% reduction in the proportion of all high school students reporting a suicide attempt within the past year. The effect was concentrated among adolescents who were sexual minorities.

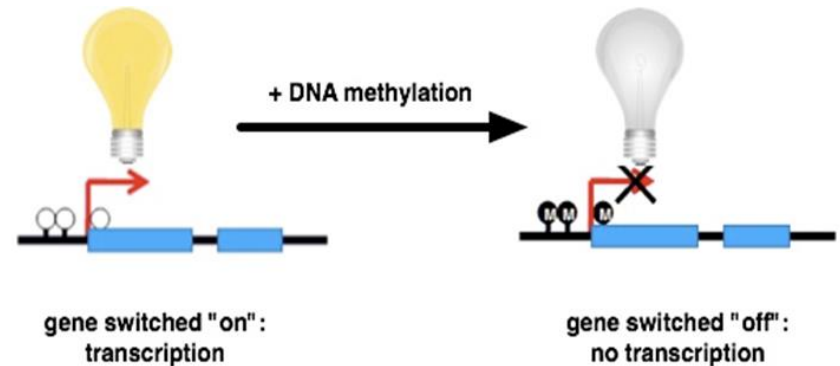
Interventions.

Gene-Environment Interactions



Epigenetics:

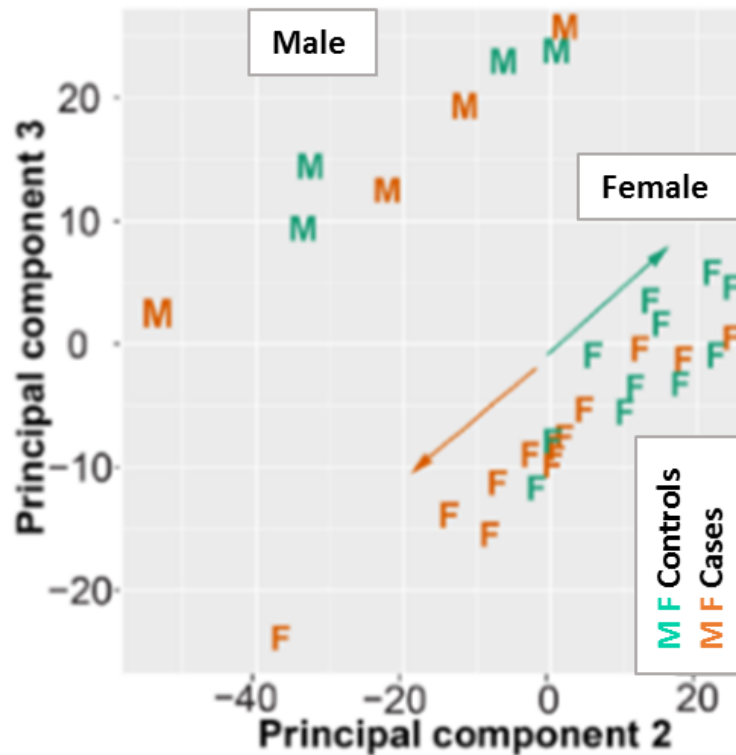
Change in phenotype without a change in genotype
e.g. DNA Methylation



DNA Methylation Analysis

Demographics		Healthy (n=16)	Depression (n=16)
Age, mean (Range \pm SD)		23 (18-32 \pm 5.4)	23 (18-32 \pm 5.0)
Gender			
	Male (%)	4 (12.5)	4 (12.5)
	Female (%)	28 (87.5)	28 (87.5)
Smoking Status			
	Past(%)	1 (6.2)	1 (6.2)
	Daily (%)	6 (37.6)	6 (37.6)
	Occasional (%)	1 (6.2)	1 (6.2)
	Never (%)	8 (50)	8 (50)

Relative similarity & differences of DNA methylation profiles between samples

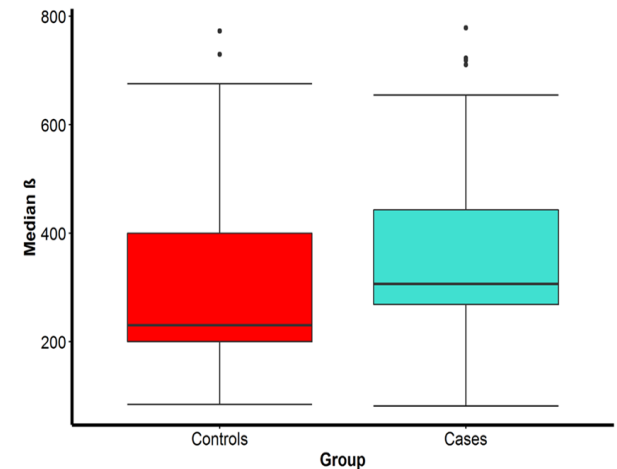


- **Separation by gender.**
- **Separation in cases vs controls in females.**

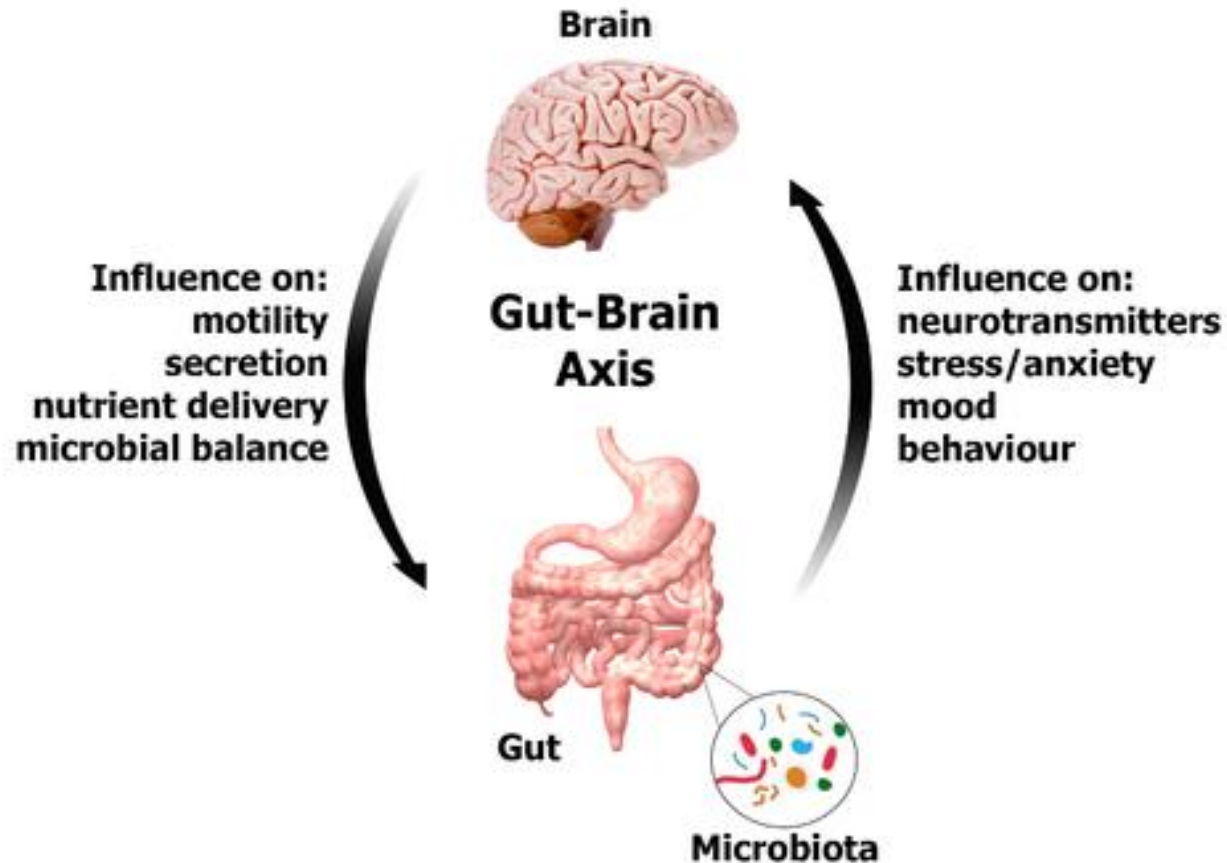
Gene Ontology Analysis

Rank	Term	Genes	%	FDR
1	Immune system response	203	21.0	7.2E-41
2	Immune Response	145	15.0	1.2E-32
3	Cell activation	101	10.4	4.9E-27
4	Leukocyte activation	90	9.3	2.4E-26
5	Reg of immune system processes	125	12.9	2.5E-26

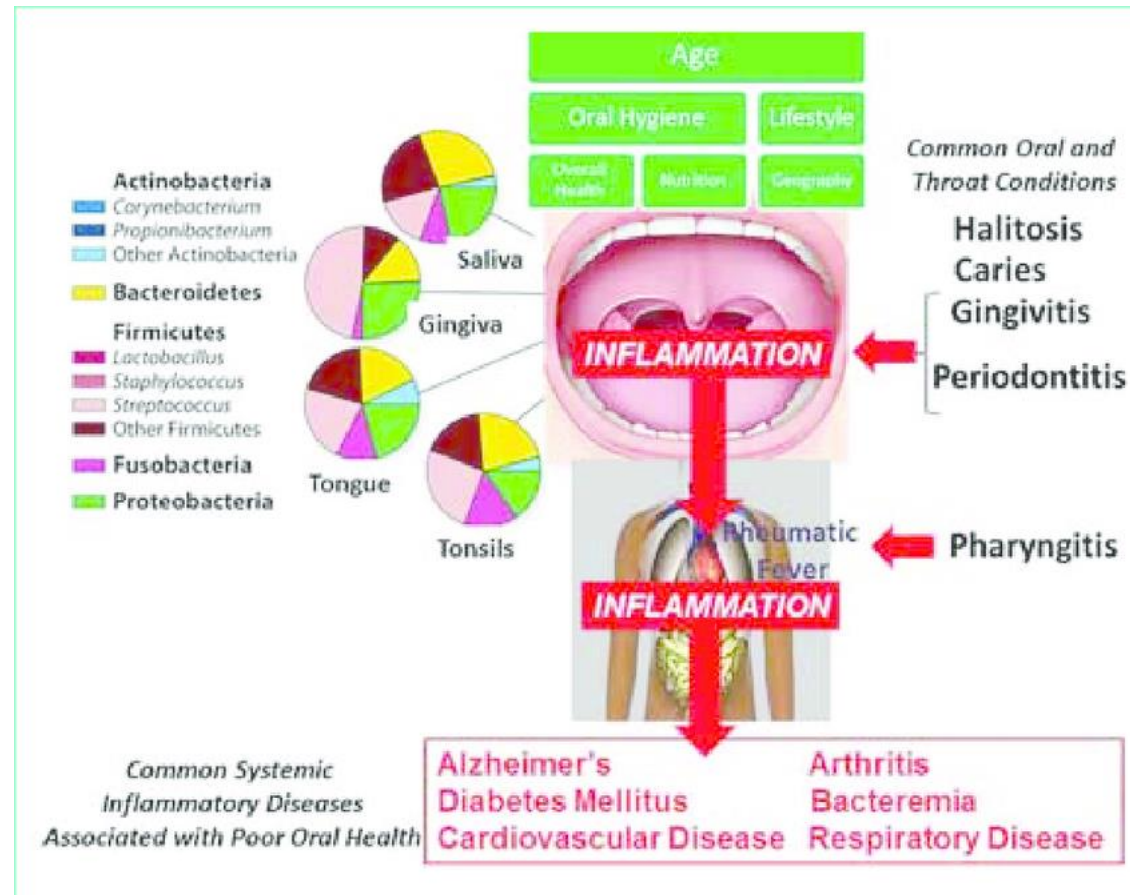
- **DAVID bioinformatics software**
- **Promoters of gene classes related to *immune function* significantly *gained methylation in cases*.**



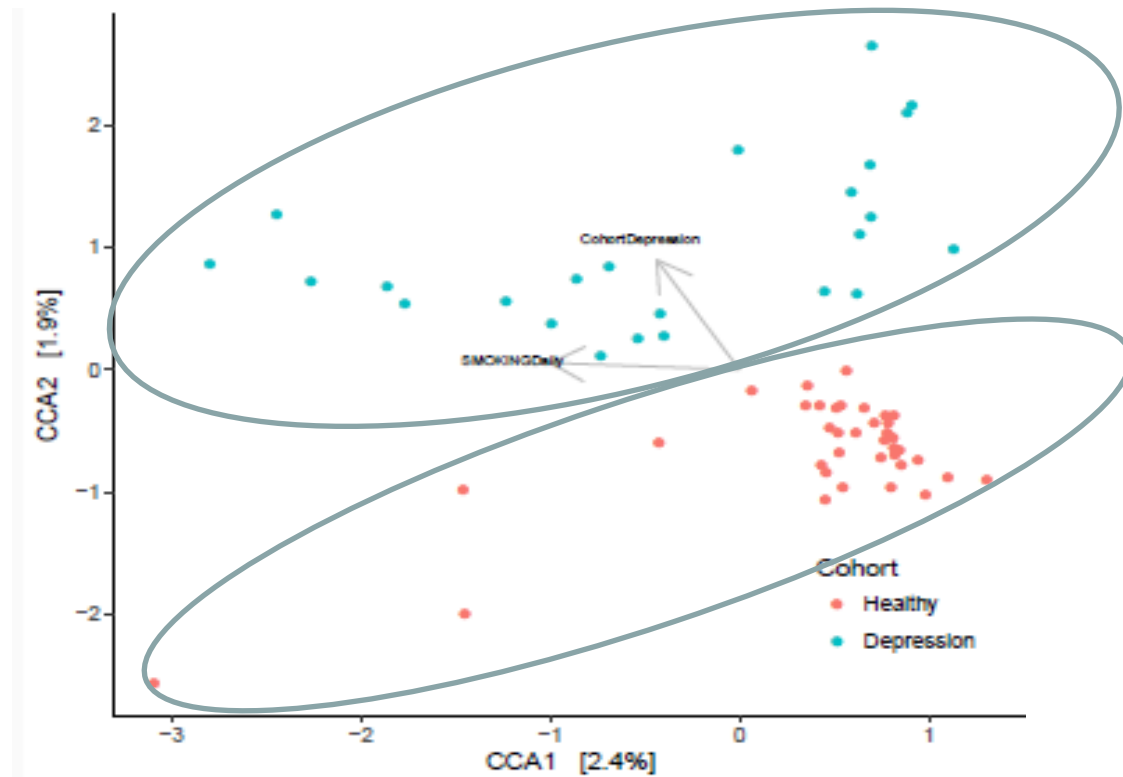
Microbiome & Depression



Oral Microbiome – Depression?

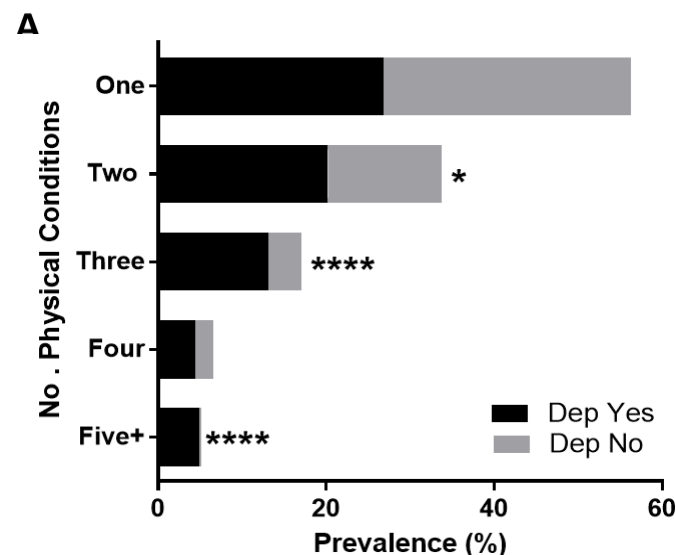
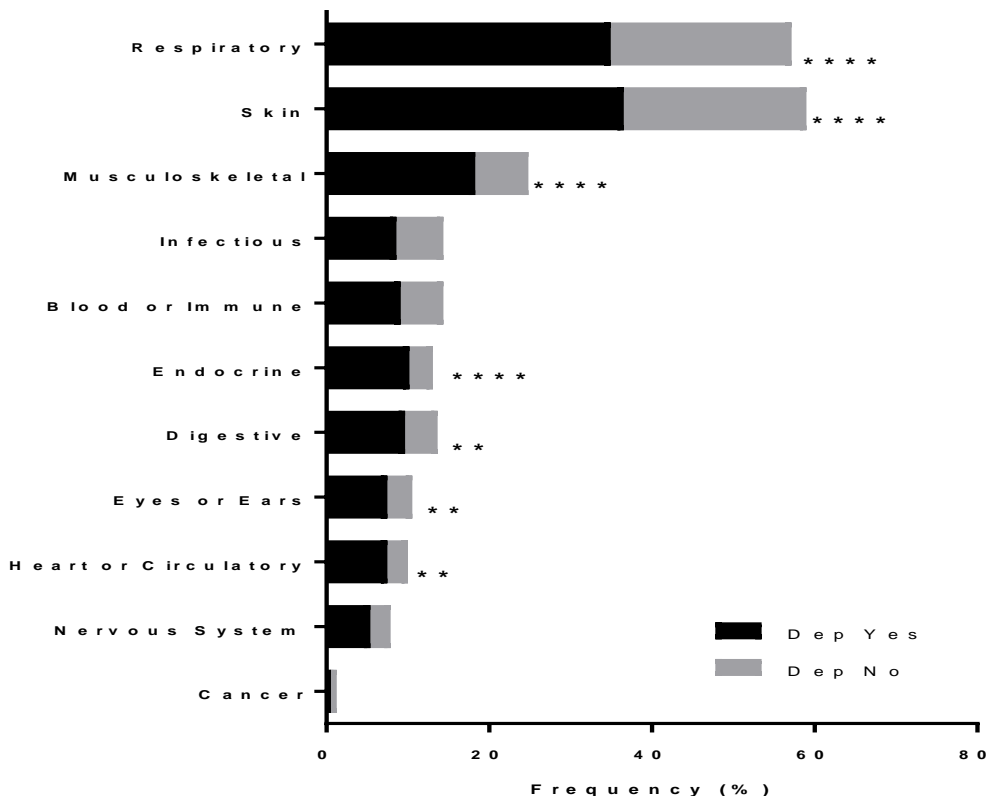


Significant Changes in Oral Microbiome Structure in Depression



CCA plot showing significant constraint terms; smoking $p=0.009$ and cohort $p=0.028$

Physical health and depression



Discussion

- High levels of pre-existing mental health problems were revealed in students commencing first year at Ulster University.
- Adverse early childhood experiences have a very negative impact on mental health and suicidal behaviour
- Depression is associated with significant effects on DNA methylation, and the genes most affected are related to immune function in the female cohort.
- Significant changes in the oral microbiome in individuals with depression, leading to imbalance of microbes associated with inflammation.
- These data suggest an immune component to the aetiology of depression, consistent with the accumulating evidence supporting a relationship between inflammation and depression.

Acknowledgements

UU Student Wellbeing Team

- **UU Psychology**
- **NI Centre for Stratified Medicine**
- Professor Siobhan O'Neill (PI)
- Dr Elaine Murray
- Dr Margaret McLafferty
- Coral Lapsley
- Professor Tony Bjourson
- Dr Edel Ennis
- Professor Cherie Armour
- Dr Sam Murphy
- Professor Brendan Bunting

BMSRI Genomics Group (Methylation Analysis)

Dr Rachelle Irwin
Sara-Jayne Thursby
Professor Colum Walsh

Intelligent Systems Research Centre (Microbiome Analysis)

Benjamin Wingfield
Prof Sonya Coleman
Prof Martin McGinnity

This work was supported by a grant of £11.5M awarded to Professor Tony Bjourson from European Union Regional Development Fund (ERDF) EU Sustainable Competitiveness Programme for N. Ireland; Northern Ireland Public Health Agency (HSC R&D) & Ulster University





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Queen's University
Belfast



The Open
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Ulster
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