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# Gambling Disorder and Suicidality, Results from a Longitudinal Nationwide Register Study

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# Gambling disorder, increased mortality, suicidality, and associated comorbidity: A longitudinal nationwide register study

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# Agenda

- Introduction

What do we know about suicidality and mortality amongst those with gambling disorder?

- Methodology

How was the study conducted?

- Results

Were mortality and suicidality levels increased compared to the Swedish population? Were there any associated risk factors?

- Discussion

Limitations & Strengths.

Implications?

Call for further research.

# Suicidality and Problem Gambling

Completed  
Suicide

Association between problem gambling & completed suicide

(Blaszczynski & Farrell, 1998, (Wong, Cheung, Conner, Conwell, & Yip, 2010 )

Suicidality

High rates of suicidal ideation or suicide attempts in problem gamblers compared to the general population

(Hansen & Rossow, 2008 ; Kausch, 2003 ; Komoto, 2014 ; Ledgerwood, Steinberg, Wu, & Potenza, 2005 ; Moghaddam, Yoon, Dickerson, Kim, & Westermeyer, 2015 ; Ronzitti et al., 2017)

GD as a  
risk  
factor

**OR: 3.43 (95% CI: 1.37– 8.60)**

(Newman & Thompson, 2007)

# In Gambling Disorder, what are the risk factors for suicide?

- We do not know
- However; we do know some risk factors for non-fatal suicidal behaviour



# In Gambling Disorder and Problem Gambling, what are the risk factors for *non-fatal* suicidal behaviour?

- Depression  
(Newman & Thompson, 2007 )
- Cluster B personality disorders  
(Bischof et al., 2015 )
- Alcohol dependence  
(Newman & Thompson, 2007 )
- ADHD (Attention-deficit and hyperactivity disorder)  
(Retz, Ringling, Retz-Junginger, Vogelgesang, & Rosler, 2016 )
- Female gender?

# Female gender & suicidal behaviour?

Increased prevalence

Female gamblers may be at increased risk of attempting suicide

(Bischof et al., 2015 ; Husky, Michel, Richard, Guignard, & Beck, 2015 ; Komoto, 2014 )

Depression

The increased risk of attempting suicide for women due to higher prevalence of depression

(Newman & Thompson, 2007 )

Risk factor

Female gender was indeed a weak but independent risk factor for attempting suicide when controlling for depression

(Bischof et al., 2015 )

# Mortality

No studies on mortality amongst individuals with GD

GD associated with poor physical health

(Black, Shaw, McCormick, & Allen, 2013 ; Morasco et al., 2006 ; Pilver & Potenza, 2013 )

Obesity

(Black et al., 2013 )

Arteriosclerosis & heart conditions

(Pilver & Potenza, 2013 )



## Aims:

General mortality – GD compared to the general population

Suicide – GD compared to the general population

Associated risk factors

# Methodology

Swedish Register Study

2005 - 2016

Inpatient and specialised outpatient care

18 years or older

SMR

Cox regression analysis



# Results

## Population (n = 2099)

- 77 % men
- 36.5 years (18-83)
- 4.7 years follow up
- 60 % anxiety
- 51 % depression
- 29 % alcohol

## Causes of Death (n = 67)

- 67 passed away (52 men /15 women)
- suicide (31%)
- neoplasms (16%)
- diseases of the circulatory system (12%)

# Results – General Mortality

SMRs stratified for different sex and age categories

Gender	20-74 years old	20-49 years old	50-74 years old
	SMR (95 % CI)	SMR (95 % CI)	SMR (95 % CI)
Men and Women	<b>1.8*</b> (1.4-2.2)	<b>6.2*</b> (4.1-8.4)	1.3 (0.9-1.8)
Men	<b>1.5*</b> (1.1-1.9)	<b>4.6*</b> (2.7-6.5)	1.2 (0.8-1.7)
Women	<b>2.13*</b> (1.0-3.3)	<b>10.5*</b> (2.7-18.2)	1.3 (0.3-2.3)

\* Significant result.

# Results – General Mortality

Multivariate Cox Regression Analysis looking at overall mortality.

Displayed as Hazard Ratios (HR) with a 95% Confidence interval (95 % CI) and Significance (p).

Factor	HR	95 % CI	p
Female Gender	0.82	0.46-1.48	0.51
Age at Censoring	<b>1.04*</b>	<b>1.02-1.07</b>	<b>&lt;.001</b>
Substance Use Disorder	1.18	0.72-1.94	0.51
Depression	1.01	0.61-1.70	0.96
Anxiety	0.84	0.50-1.40	0.50
Malignant Disease	1.62	0.96-2.73	0.07
Cardiovascular Disease	<b>2.32*</b>	<b>2.33-4.02</b>	<b>&lt;0.01</b>

\* Significant result.

# Results – Suicide Mortality

SMRs for completed suicide stratified for different sex and age categories

Gender	20-74 years old	20-49 years old	50-74 years old
	SMR (95 % CI)	SMR (95 % CI)	SMR (95 % CI)
Men and Women	<b>15.1* (8.7-21.6)</b>	<b>19.3* (9.8-28.7)</b>	<b>9.6* (1.2-18.9)</b>
Men	<b>12.1* (6.5-17.7)</b>	<b>14.3* (6.5-22.0)</b>	<b>9.5* (1.2-17.8)</b>
Women	16.1 (-2.1-34.3)	30.1 (-4.0-64.2)	**

\* Significant result.

\*\* No documented suicides in this category.

# Results – Suicide Mortality

Multivariate Cox Regression Analysis looking at suicide mortality.  
Displayed as Hazard Ratios (HR) with a 95% Confidence Interval (95 % CI) and Significance (p).

Factor	HR	95 % CI	p
Female gender	0.49	0.14-1.67	0.25
Age at first GD diagnosis	1.02	0.98-1.05	0.37
Substance use disorder	1.10	0.46-2.63	0.83
Depression	<b>5.45*</b>	<b>1.57-18.93</b>	<b>&lt;0.01</b>
Anxiety	0.87	0.34-2.22	0.77

\* Significant result.

# Discussion - results

## General Mortality

Somewhat lower than for populations with mental disorders including substance use disorders

(Hayes, Miles, Walters, King, & Osborn, 2015 ; Ericsson, Brådvik, & Håkansson, 2014; Åhman, Jerkeman, Blomé, Björkman, & Håkansson, 2018 ; Pan et al., 2014 )

## Suicide Mortality

Similar levels to populations with mental disorders including substance use disorders

(Charrel et al., 2015 ; Fugelstad et al., 2014 ; Hayes et al., 2015 ; Nordentoft et al., 2013)

## Gender

Few women in the study



# Discussion

## Limitations

- Primary care
- Undiagnosed individuals with GD
- Lack of control group

## Strengths

- Longitudinal design
- Sample size
- Reliabel data

# Discussion – future research

Debt

Are economic factors associated with suicide?

Problem  
gambling

Is problem gambling associated with increased risk of completed suicide?

Gender

Are women with GD at increased risk of suicide?

# Conclusion

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Mortality and particularly suicide rates are greatly  
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Efforts to assess and prevent the risk of suicide amongst individuals with gambling disorder are important.

### Conclusion:

Mortality and particularly suicide rates are greatly elevated among individuals with a diagnosis of GD.

Efforts to assess and prevent the risk of suicide amongst individuals with GD are important.

Depression was a significant predictor of suicide death, and this calls for enhanced focus on the mental health comorbidity in gambling disorder.

Kiitos / Thank you / Tack!



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Feel free to ask any questions