

# Online gaming network communication dynamics, depressive symptoms, and social support: longitudinal network analysis

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## Introduction

65%



of Americans report playing video games daily

Public health professionals are concerned with depression and reduced social involvement

Games may provide features to extend real life relationships and make new ones online

## Objective

Investigate the social structure of an online gaming site and impacts of social support, sense of community, and depressive symptoms on social connections with other gamers using longitudinal social network analysis.



## Methods

### Setting

- Online football simulation game
- Participants (n=40) interacted via forums and chat function

### Measures

- Depressive Symptoms – PHQ-9
- Online and “in-real-life” (IRL) Social Support

### Social Network

- Nominated other members on the site with whom they spoke to about important life matters

### Data Analysis

- Separable Temporal Exponential Random Graph Models (STERGM)

## Results

Parameters	Formation		Dissolution	
	PE (SE)	<i>p</i>	PE (SE)	<i>p</i>
Edges	-5.72 (1.26)	<.01*	6.61 (5.31)	.21
Reciprocity	0.87 (0.30)	<.01*	-0.17 (0.74)	.80
Transitivity	0.71 (0.12)	<.01*	0.56 (0.27)	.04*
<b>Homophily</b>				
Age	0.07 (0.02)	<.01*	0.17 (0.08)	.03*
Depressive Symptoms	0.04 (0.03)	.15	-0.10 (0.06)	.14
<b>Receiver Covariates</b>				
Age	0.03 (0.01)	.02*	-0.10 (0.07)	.13
Sense of Community	-0.12 (0.19)	.53	0.60 (0.59)	.30
Site Hours	-0.02 (0.01)	.06	0.06 (0.02)	.02*
IRL Support	-0.01 (0.18)	.94	-0.32 (0.50)	.52
Online Support	0.05 (0.15)	.72	0.49 (0.51)	.33
Depressive Symptoms	0.01 (0.02)	.88	0.06 (0.07)	.38
<b>Sender Covariates</b>				
Age	0.04 (0.02)	<.01*	0.02 (0.06)	.74
Sense of Community	0.38 (0.19)	.04*	0.16 (0.43)	.71
Site Hours	0.01 (0.01)	.18	0.01 (0.02)	.42
IRL Support	-0.52 (0.18)	<.01*	-1.19 (0.58)	.04*
Online Support	0.44 (0.16)	<.01*	-0.62 (0.37)	.09
Depressive Symptoms	-0.06 (0.02)	.02*	-0.02 (0.05)	.63

\* Parameter estimate greater than two times standard error indicates significant effect



Gamers were significantly more likely to form reciprocated and transitive relationships

Gamers who reported more IRL support were significantly less likely to speak to others online about important life matters and less likely to maintain ties over time.



Gamers who reported more online support were more likely to speak to others online about important life matters

Gamers who felt more depressive symptoms were less likely to speak to others online about important life matters



## Conclusions



Examining the impacts of online gaming communication on feelings of support and DS is increasingly important as the popularity of gaming increases.



Results are timely given social isolation and mental health impacts of COVID-19; online connectivity could be a source of support during this socially isolating time.