

# PERCEPTION DIFFERENCES BETWEEN THE DEPRESSED AND NON-DEPRESSED USERS IN TWITTER

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Information School  
UNIVERSITY of WASHINGTON

# WHY?

- **Depression is a serious social problem**
  - The **most commonly diagnosed** mental disorder
  - Reported \$193 billion annually in lost earnings
  - Much effort has been made towards the early diagnosis, treatment, and prevention of depression



# WHY?

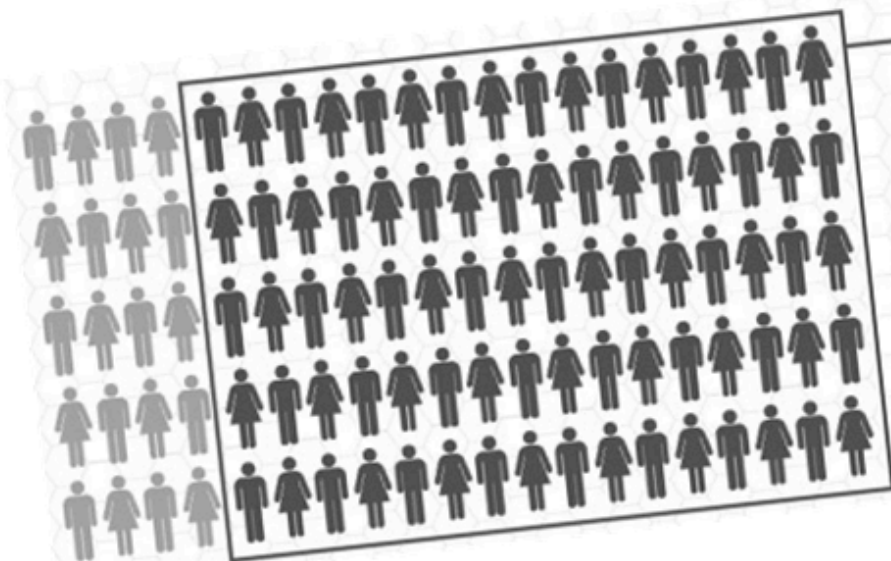
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# WHY?

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Over **80%** of the people that have symptoms of clinical depression are not receiving any specific treatment for their depression.

The number of patients diagnosed with depression increases by approximately **20%** per year.

# WHAT CAN WE DO?

- **Social media can detect depressed users**
  - by capturing prevalence of Major Depressive Episodes [Moreno et al. 2011]
  - by capturing sentiments differences [Park, Cha, and Cha 2012]
  - by capturing patterns of usage [Kotikalapudi and Lutzen 2012, Choudhury et al. 2013]

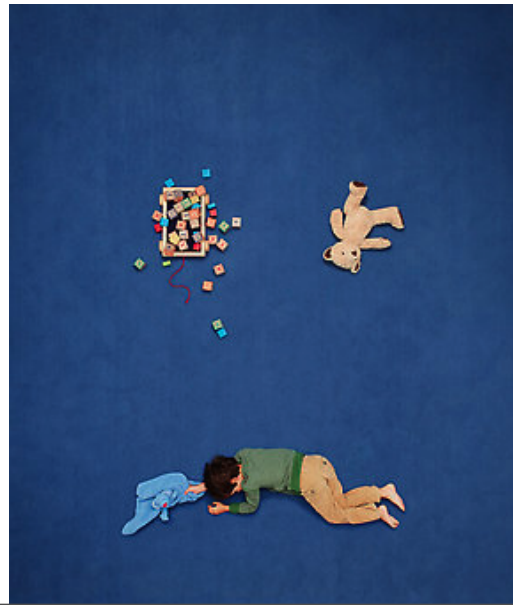
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**Social media systems  
could do much more than detection!**

# OUR GOAL

**Understand the perception and behavior characteristics of social media users with depression**



# DATA

Participant	Group	Gender	Primary Network
D01	Depressed	F	Twitter
D02		F	Twitter
D03		M	Twitter
D04		M	Twitter
D05		F	Twitter
D06		F	Twitter
D07		F	Twitter
ND01	Non-Depressed	M	Twitter, Facebook
ND02		M	Twitter
ND03		F	Twitter, Facebook
ND04		M	Twitter, Facebook
ND05		M	Twitter, Facebook
ND06		M	Twitter
ND07		F	Twitter

## ■ 90 minutes interviews

- semi-structured
- 7 depressed and 7 non-depressed
- native Koreans live in Seoul
- a number of follow-up interviews

## ■ Friends' tweets for quantifying the emotional significance

- 1.5m for depressed participants
- 1.6m for non-depressed participants
- randomly selected 5,000 tweets from each group were analyzed by LIWC



# ANALYSIS

- An iterative process of analysis inspired in grounded theory
  - All interviews were transcribed and pseudo-anonymized
  - Follow-up interviews were combined into the transcripts

## EMERGENT THEMES:

- **Following & unfollowing behaviors**
- **Messaging activities**
- **Considering Twitter as a social-awareness stream**
- **Loose connection and instant attributes of Twitter**



# Findings

# FINDINGS

- Preference for **Following**:
- Depressed participants preferred to read tweets with emotional life stories!

*“I’m so happy that my first attempt to cook was wonderful!”*

*“Everyone talks about similar things like politics. Something light and comfy is what I want to read and write. So I want to follow people who talk a lot about ordinary stuff, but it’s really hard to find someone like that. You really have to dig in.”*

# FINDINGS

- Reasons for **Unfollowing**
- Depressed participants tried to avoid complaining, whining, gloomy, and depressing tweets

*“I unfollow downers, because I worry that I might also become gloomy by reading their tweets. I don’t want to be carried away. I know I’m a sensitive person, so there is nothing else I can do besides unfollowing. I don’t want to sink with them.”*

# FINDINGS

- **Loose connection and instant attributes of Twitter**

**Loose Connection**

**Instant Attributes**

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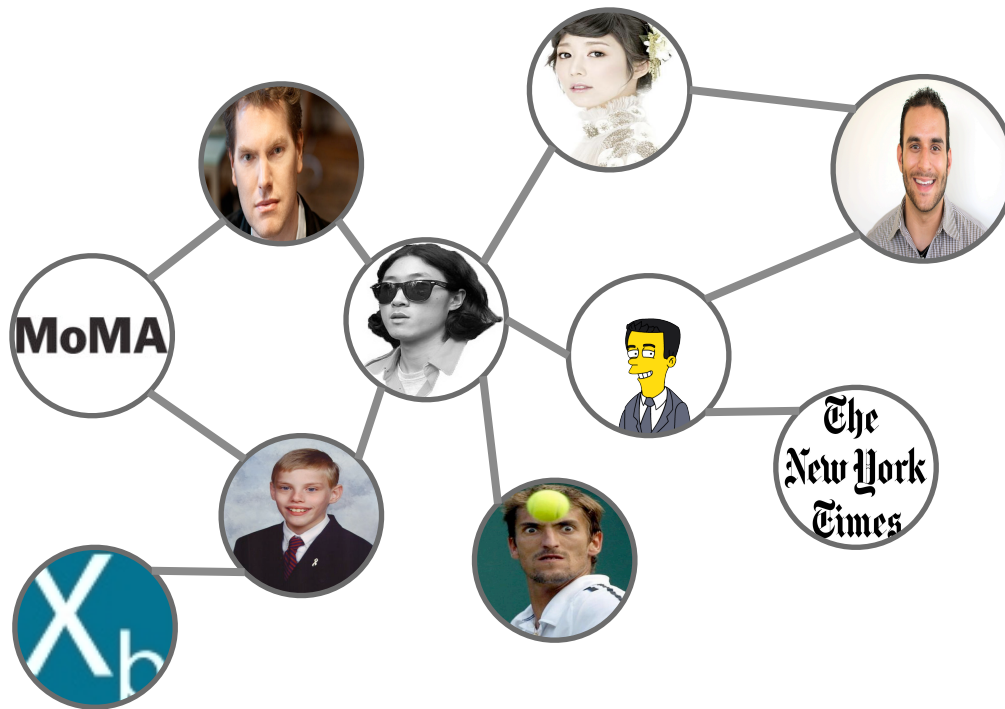
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promotes

**Social Awareness**

*“Twitter makes me think that I’m not alone in this world and that I can be myself. Looking at the timeline of Twitter flowing all the time reminds me that the world is constantly changing without my effort, yet still, also reminds me that I’m not alone in this world at the same time.”*



# FINDINGS

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promotes

**Social Awareness**

*“They (depressed individuals) are burdened by the problem all the time because of lack of communication. But through Twitter, they can read others’ tweets like ‘I eat,’ ‘I got hurt,’ ‘I’m sad,’ ‘I broke up with my girlfriend.’ This experience makes them think their problem is just one of tons of problems in the world and realize that their problem may not be as immense as they had been thought.”*

# FINDINGS

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**Instant Attributes**



**Encourage and lower barriers to communicate**

*“When I talk to my friends [face-to-face or in Facebook] about someone who hurt me, they seem to be super-supportive and get more upset than myself. As a result, I feel even more negative and the situation gets worse. But when I say the same thing on Twitter, only a few will notice because tweets just flow away in the timeline. It’s hard to explain but I like this kind of indifference.”*

# FINDINGS

- **Loose connection and instant attributes of Twitter**

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**Instant Attributes**



**Encourage and lower barriers to communicate**



**Consoling oneself**

*“Twitter makes me feel like I’m shouting in the void. So I can write a lot about things that only I can understand. Then I feel consoled.”*

# SUMMARY

## ▪ Participants **with** depression

- perceived Twitter as a tool for social awareness and consoling oneself
- preferred to read others' daily lives with emotional content
- sensitive about the implications of social interactions such as 'mention'
- careful in controlling the types of sentiments they received from peers

## ▪ Participants **without** depression

- perceived Twitter as an information consumption and sharing tool
- keen to manage the amount of information they received
- more willing to participate in active social interactions
- retweeting provided a mechanism for curating or archiving tweets

# IMPLICATIONS

- What do these results mean?
  - Social Media based Healthcare that can support depressed individuals
- What could systems do to help?
  - Use Twitter?
  - Change how it presents information and the range of possible social relationships?

# THANK YOU



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