Management of Diabetes through Online Social Network Use

Megan L. Robbins, Psychology

Robert C. Wright

Kevin Esterling, Political Science

Vagelis Hristidis, Computer Science

Moloud Shahbazi

Stephanie Stramotas, College of Medicine

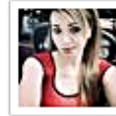Ray Samoa, Endocrinology,

Diabetes & OSNs

- 29.1 million people in U.S. have diabetes

- Symptoms: thirst, hunger, vision changes, fatigue

- Risks: Cardiovascular disease, blindness, loss of limb

- Daily management helps

- Advice and support in Online Social Networks (OSNs)

(CDC, 2014)

High BS in the morning

By genniedevera ⊘ Latest Reply 6 hours ago

Started 2 days ago ♡ 0 Likes

Hello, any suggestions on late night snack, before bedtime? I was told this may be the cause of my high readings in the morning... not eating enough at night ...

Tags: diabetes diet | diabetes control | type 2 diabetes | blood sugar | emotional support
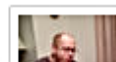
f Like 0   Tweet   Pin it

Add your reply

9 replies

smlwndrchar   6 hours ago   ♡ 0

for a night snack I always take 1/2 cup Greek Yogart topped with a handful of mixed unsalted nuts-I love it and have it every night

Reply   Like

wraithmb   13 hours ago   ♡ 0

Research Questions

1. What are the properties of diabetes OSNs?
    - Date/time
    - Text
    - "Likes"
    - Friends, Followers

2. How do patients interact with each other?
    - Emotional, Informational, Structural Support
    - Seeking, providing

3. How do these factors affect diabetes management?
    - Study 2 underway

Method
DiabeticConnect.com

Discussion
Title: Quitting Sugar – an article by Sarah Wilson
Text: By Sarah Wilson ...

User: tabby9146
Tags: Type 2 Diabetes

Date: March 3, 2014 8:30 pm

Reply
Text: I enjoyed this article ...

User: jdenton360
Date: March 3, 2014 9:05 pm

Reply
Text: I like her "take no Prisoners" attitude ...

User: Gabby
Date: March 3, 2014 9:20 pm

Reply
Text: Living alone does have ...

User: jaybee52
Date: March 3, 2014 10:15 pm

- "Scrape" publicly available data
- 1000 randomly-selected posts
  - Username
  - Date/time
  - Text
  - "Likes"
  - Main post
  - Comments
  - Responses
  - Friends, Followers

Method

DiabeticConnect.com

Support Coding:

- **Emotional**: emotion expression (seeking), seeks/provides validation or encouragement

- **Informational**: seeks/provides welcome advice or information

- **Structural**: seeks/provides inclusion or acceptance in network

- Inter-coder agreement (kappa): .39 - .77

- 4 coders, ≥ 3 "votes" → 735/1000 posts

Human coders
↓
Build classifiers
↓
Computer codes all
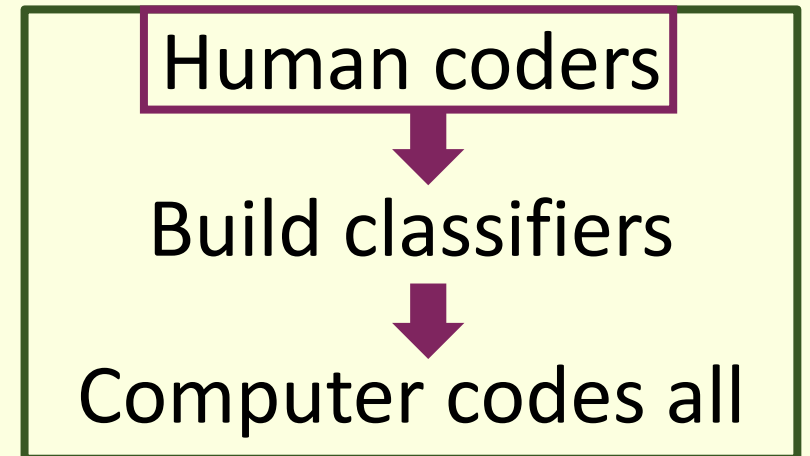
Providing Emotional Support: "Sorry you have this problem, and I do too."

Seeking Emotional Support: "I am so stressed and disgusted with the 60 pounds that I have gained from just taking the medications to control the diabetes. I look like this fat pregnant telletubbie. I am so sad and do not know why it is hard for me to get back to normal size."

Providing Informational Support: "Russell Stover Sugar Free Candy is fabulous but it's not carbohydrate free…There is peanut butter cup flavor, heath bar flavor, almond joy and others. Cannot tell the difference between their sugar free and the real thing! Walgreens and Wal-Mart sell it."

Seeking Informational Support: "We have been doing the fasting blood test, no glucose and I have been running a 140 and they said I am diabetic and put me on a pill I take when I eat… I am really confused and my Dr. does not have much bedside manner to explain. So what does it all mean?"

Providing Structural Support: "First of all, welcome to our website! I cannot say enough good things about this place and the incredible people I've met who have become real life friends as well as virtual."

Seeking Structural Support: "Hello Everyone! I am new here and feel blessed to have found this site with such an abundance of information and support."
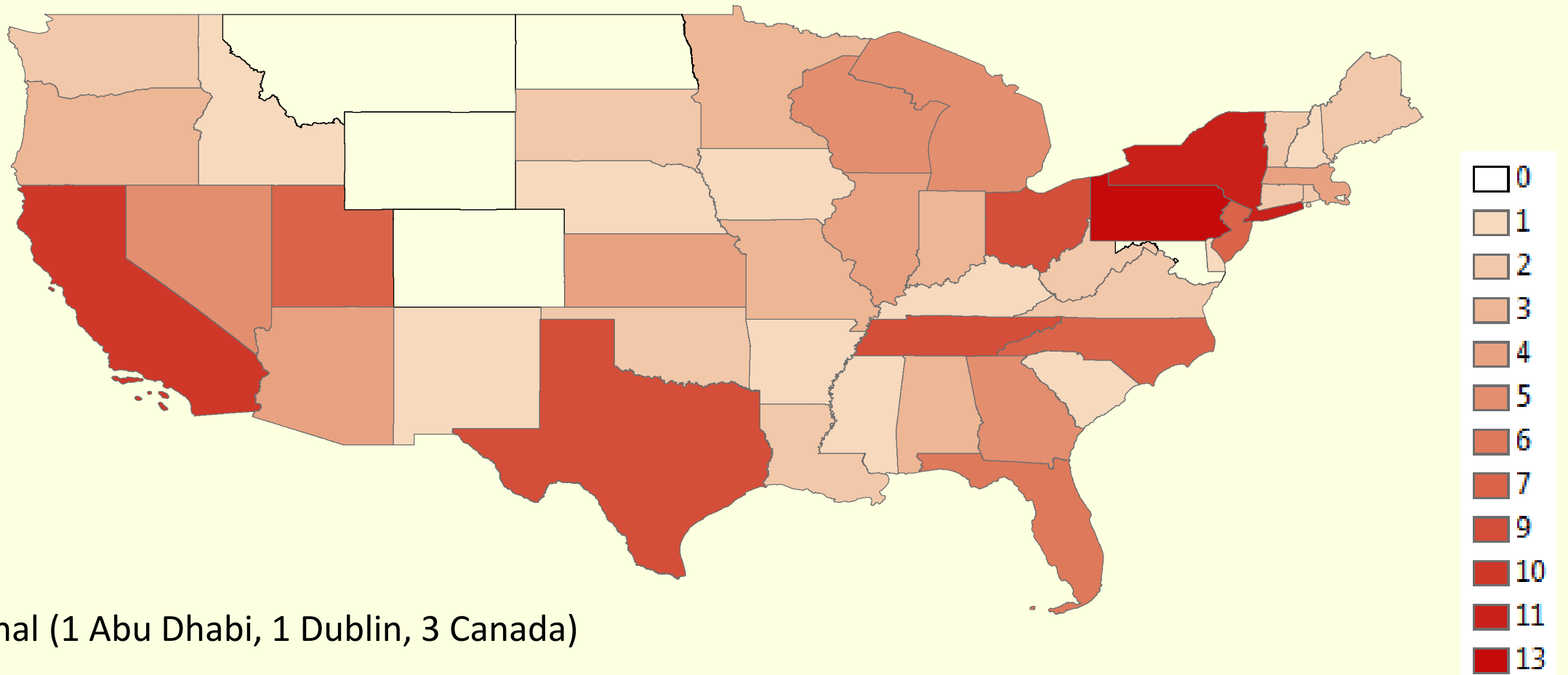
DiabeticConnect Users

- 528 unique users

- 38 reported age
  - M (SD) = 55.62 (11.13)
  - Range = 25-74 years

- 421 reported gender
  - 67.7% Female

- Date Joined (n = 504)
  - Median: 5/2/2010
  - Range: 3/11/2008 – 4/10/2014
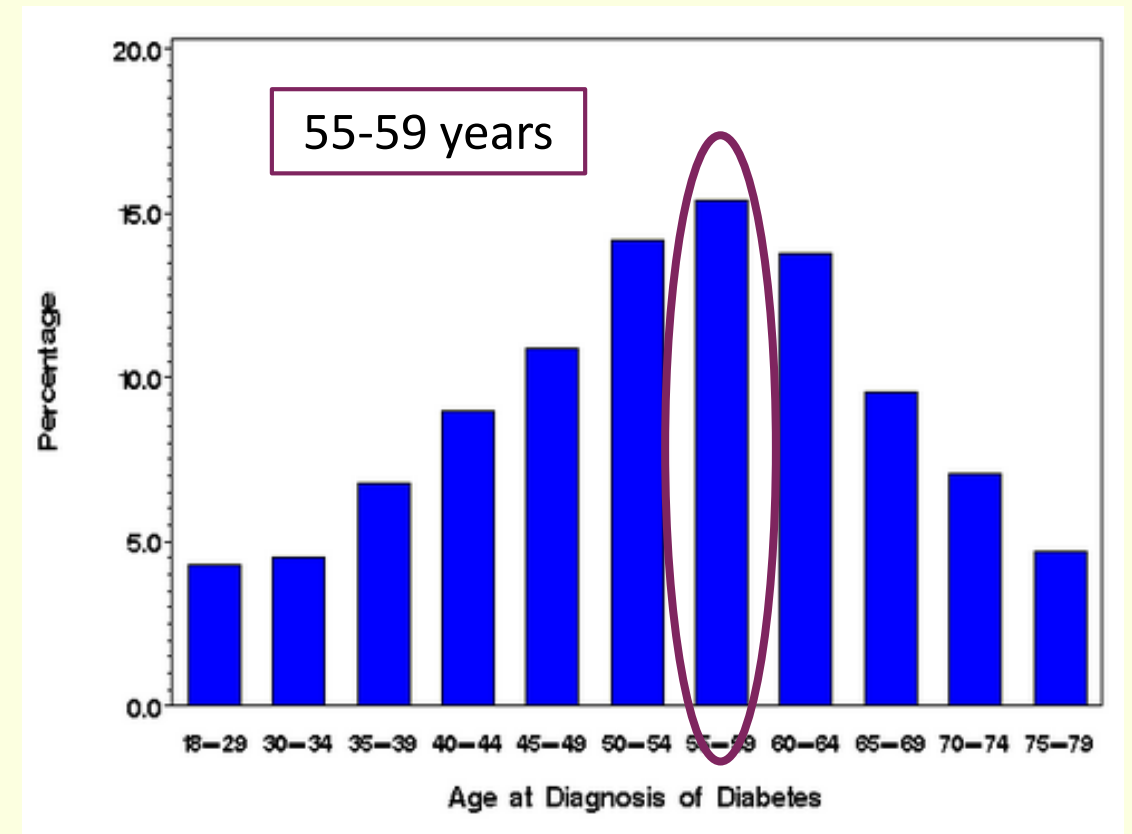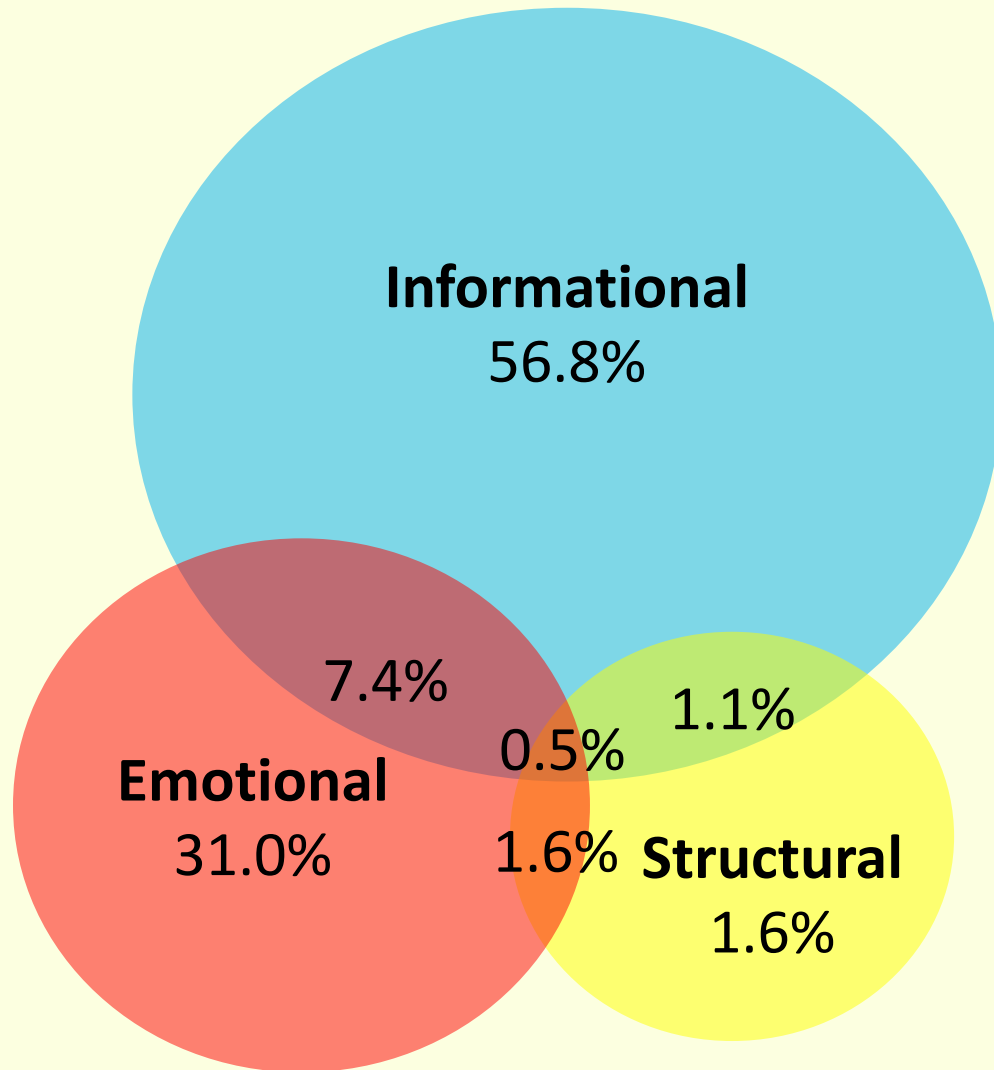

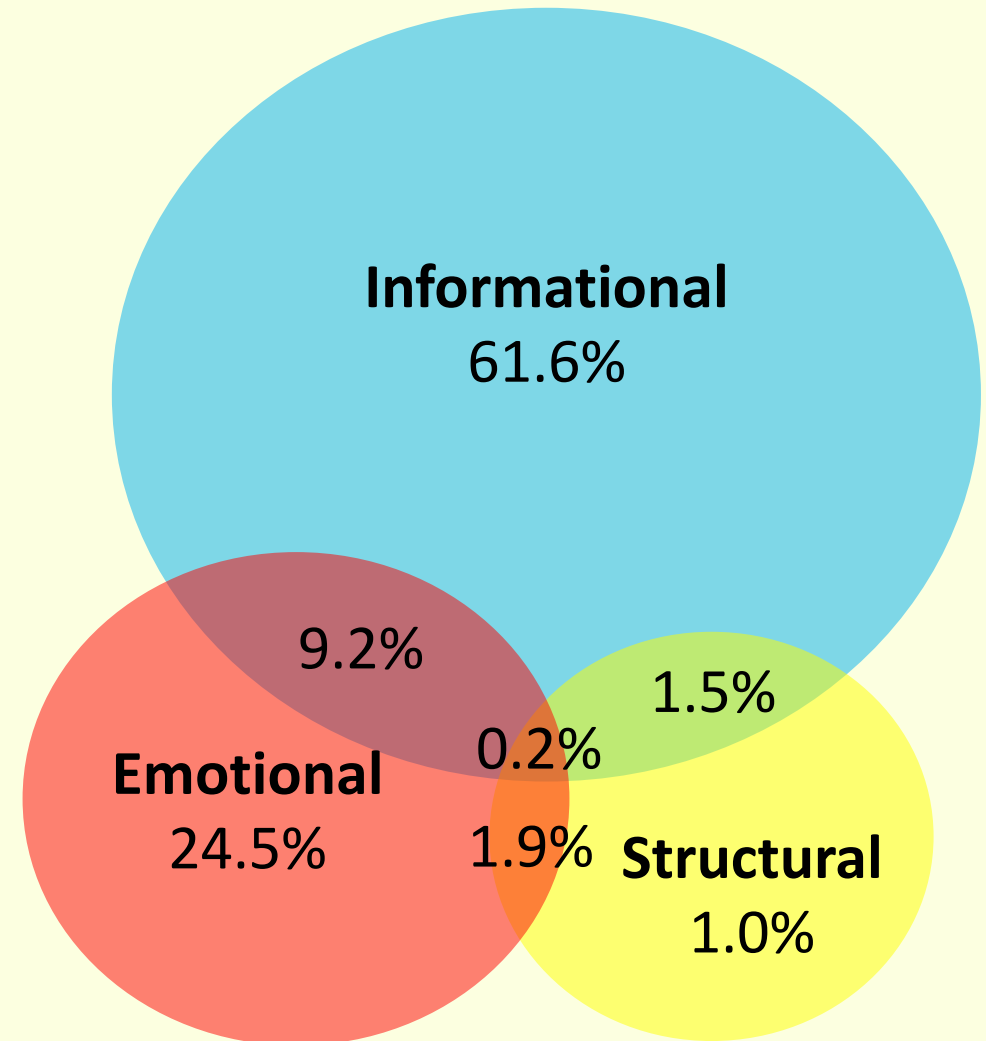(CDC, 2011)

DiabeticConnect Users' Location
(n = 169)

5 international (1 Abu Dhabi, 1 Dublin, 3 Canada)

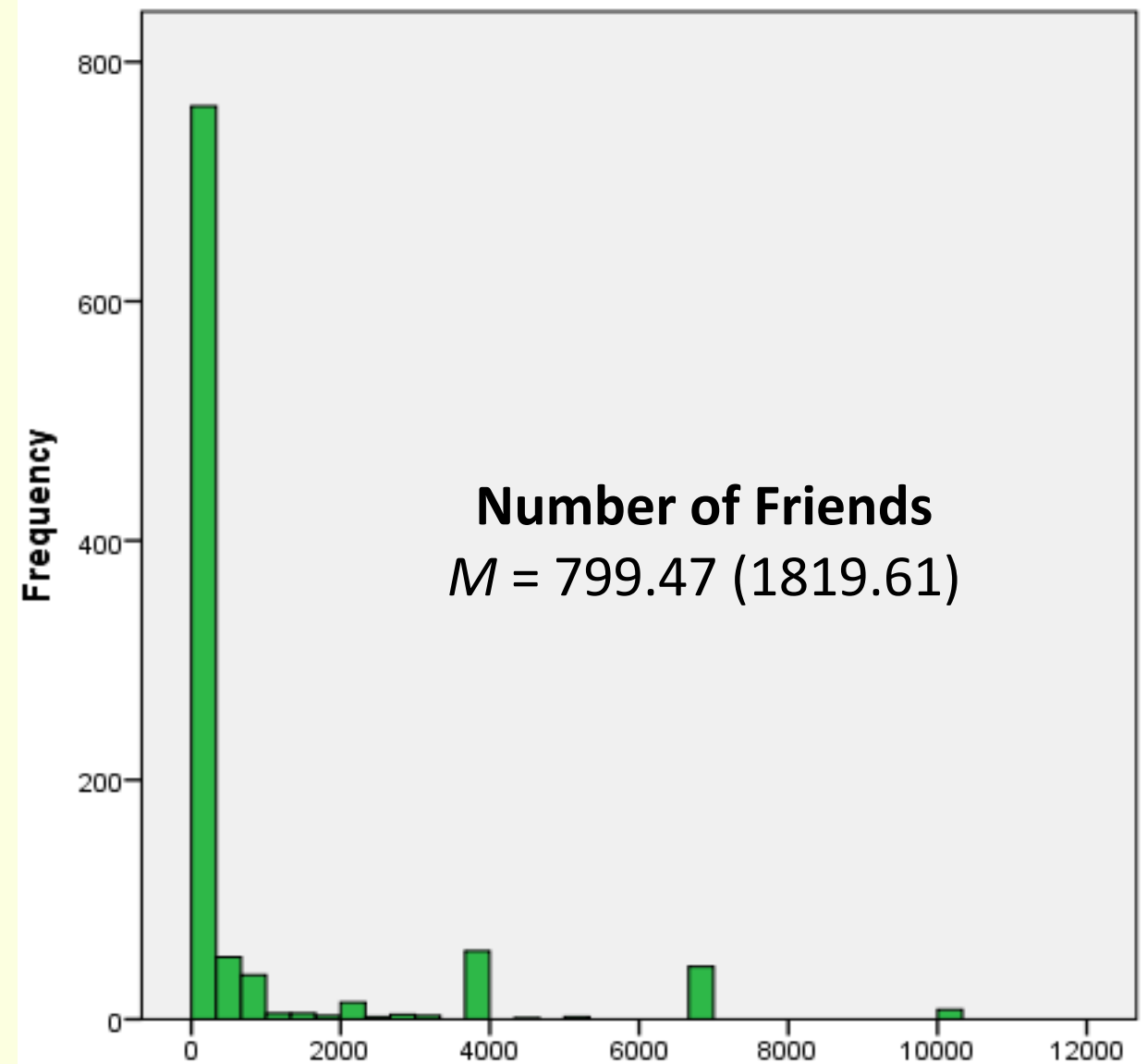|	
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▢	1
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▢	11
▢	13

2013 TIGER/Line Shapefiles [machine-readable data files]/ prepared by the U.S. Census Bureau, 2013

Support Frequencies

Seeking: 190 posts

Providing: 477 posts

Informational 56.8%

Emotional 31.0%

7.4%

0.5%

1.1%

1.6%

Structural 1.6%

Informational 61.6%

Emotional 24.5%

9.2%

0.2%

1.5%

1.9%

Structural 1.0%

Properties of Posts

Likes
M = 1.18 (1.54)

Number of Friends
M = 799.47 (1819.61)

Properties of Posts

Number of Followers
M = 5533.78 (20434.52)

Number of Followees
M = 79.92 (314.56)
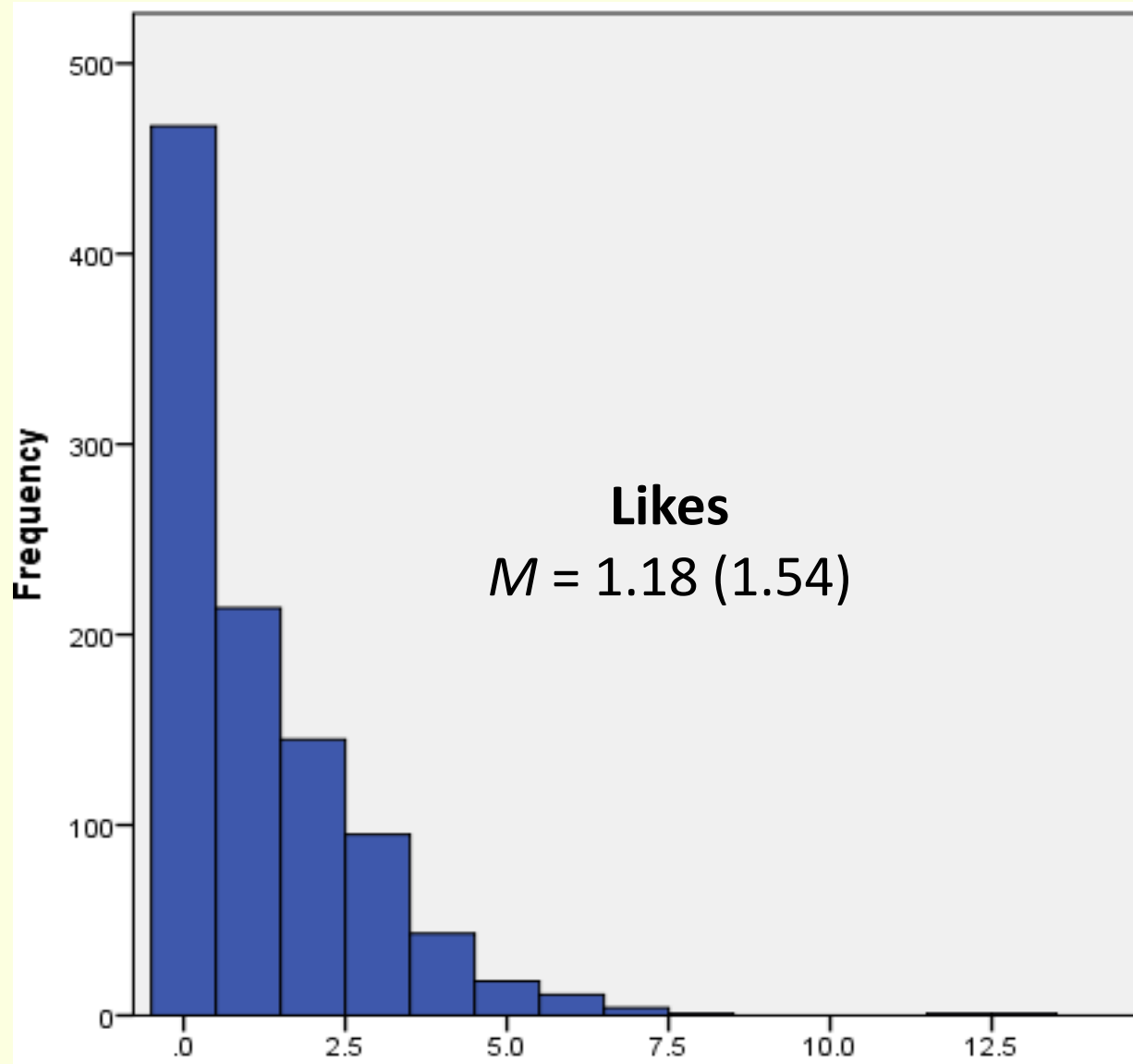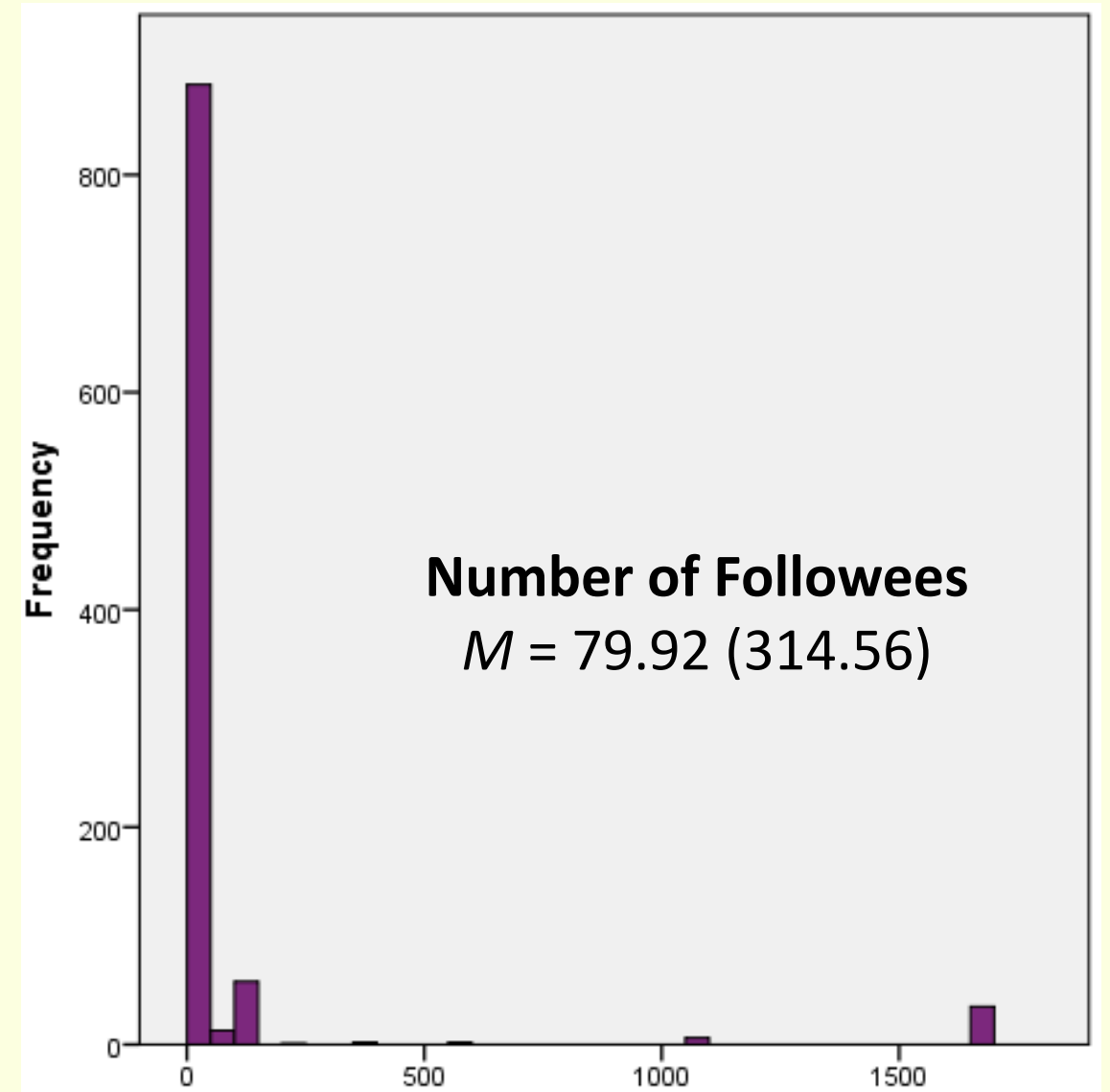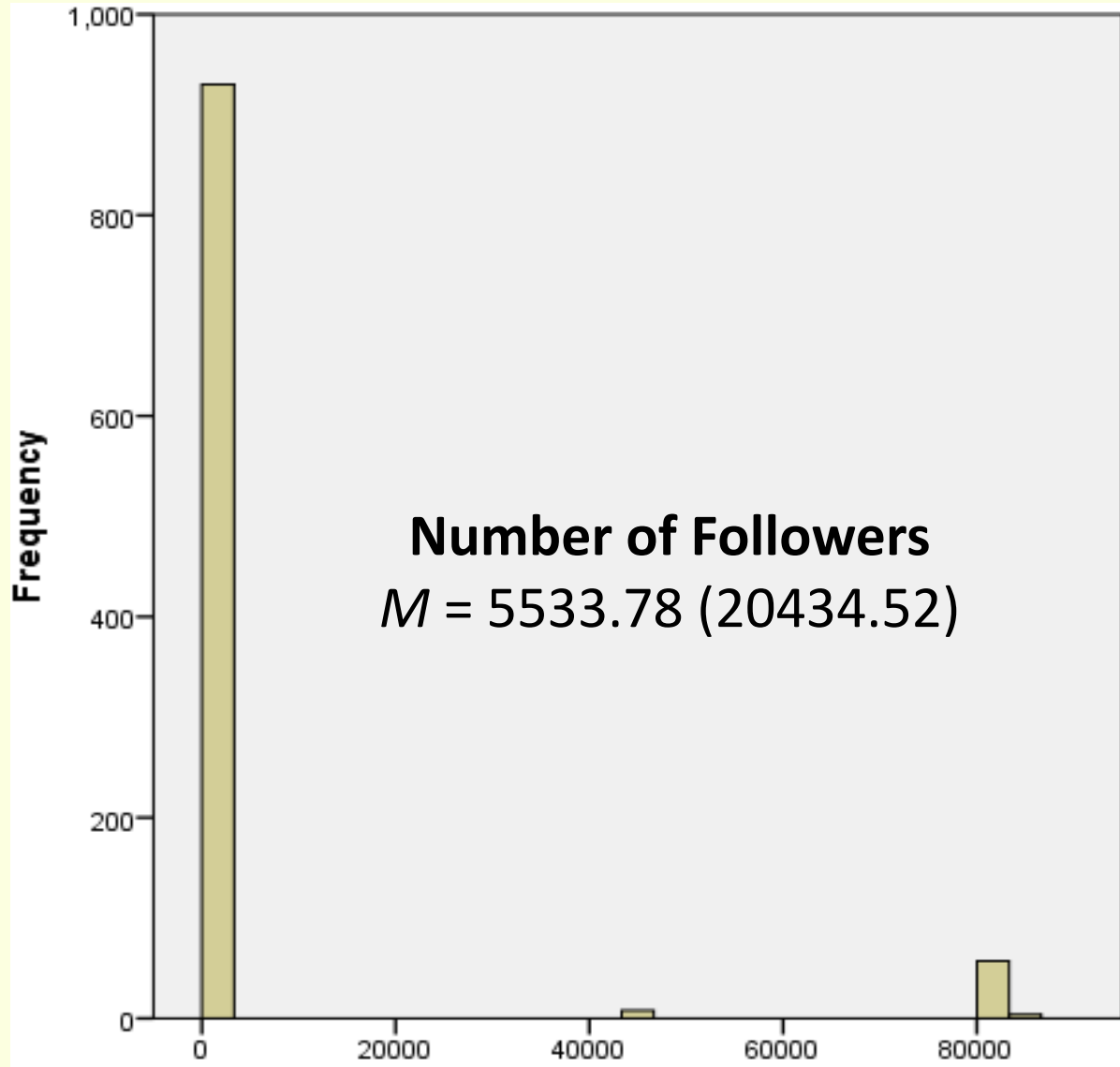
Properties of Posts by Support Seeking and Providing
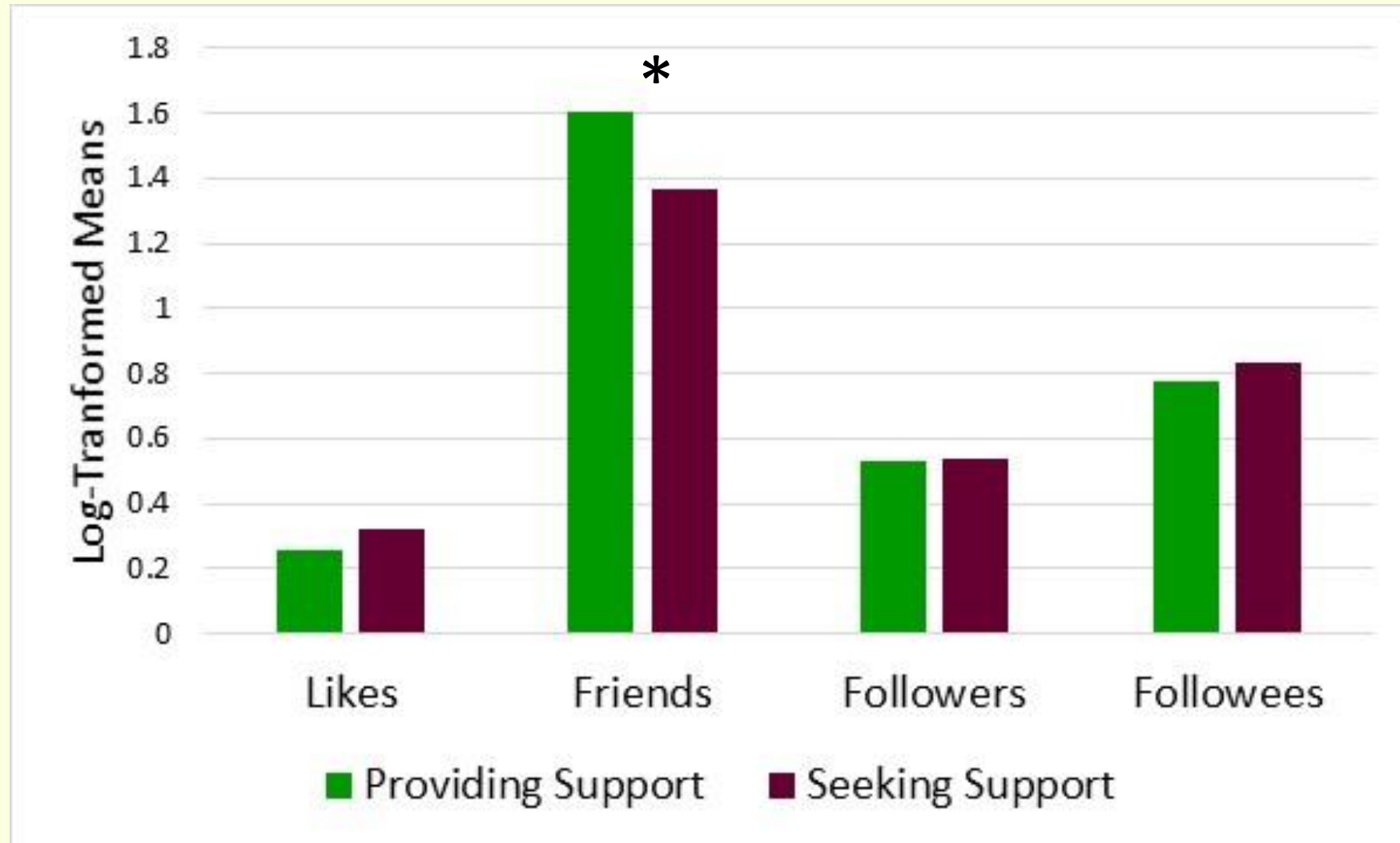
Friends: $t(300) = 2.59$; $p = .01$, $d = .31$, 95% CI [.06 - .41]

Future Analyses

For Each User

- Build classifier

- User trajectory over time
    - Start as "seeker" and then "provider"

Inter-relations among users and posts

- Connection formation (friends, followers)

- Flow of classifications (among reply threads, friends)

- Quality of information among social networks

Ultimate goal: Accurate classifier to guide patients

Thank You!

UC Regents for seed funding

Robert C. Wright	Jennifer Lobos
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Moloud Shahbazi	Sharon Trinh
Stephanie Stramotas	
Ray Samoa	