

Paper Review #7

[CHI 2021] Social Support is Contagious:
Exploring the Effect of Social Support in Online Mental Health Communities

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1. Introduction

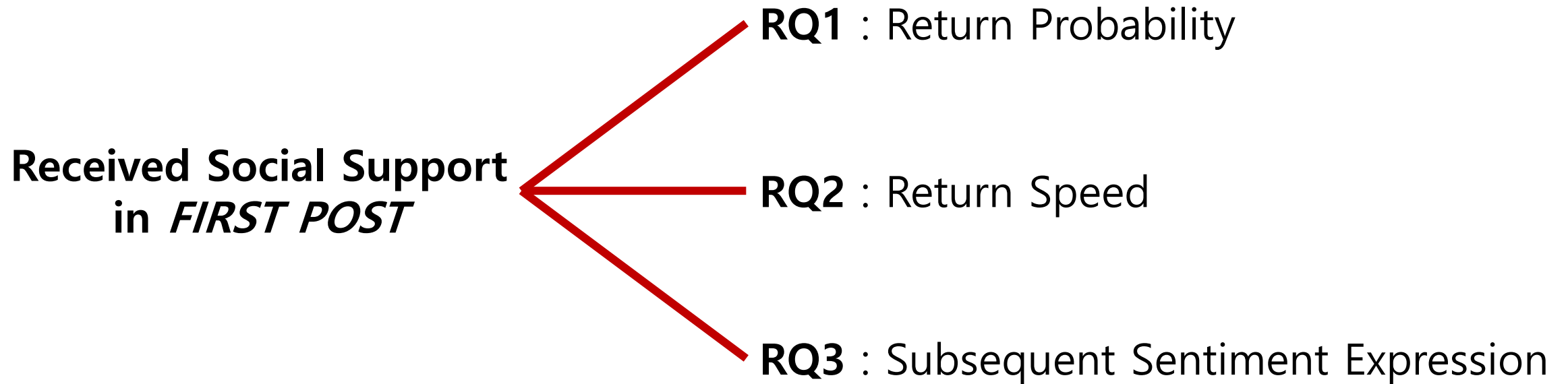
2. Method

3. Result

4. Discussion

1. Introduction

Research Questions



2. Method

Data Collection

- from **22** mental health related subreddits (**OMHCs**)

(r/depression, r/mentalhealth, r/Anger, r/ptsd, r/traumatoolbox, r/psychoticreddit, r/SuicideWatch, r/MMFB, r/getting_over_it, r/survivorsofabuse, r/alcoholism, r/BPD, r/rapecounseling, r/bipolarreddit, r/addiction, r/DPDR, r/hardshipmates, r/feelgood, r/StopSelfHarm, r/panicparty, r/socialanxiety, r/EatingDisorders)

User Selection

- **Not posted** in OMHCs from **2016.9 ~ 2017.9**

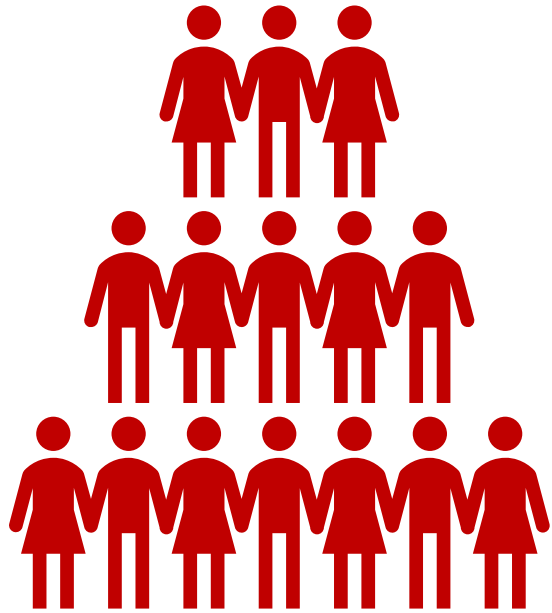
AND

Posted in OMHCs from **2017.9 ~ 2018.8**

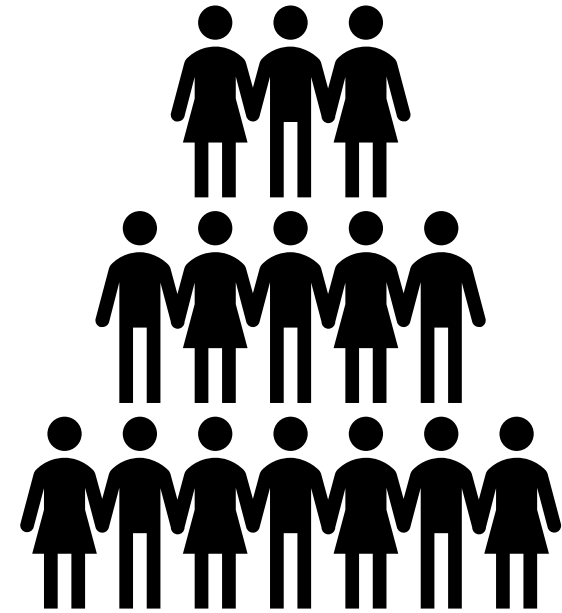
 **105,739 users and their first posts**, 487,877 attached comments
99,683 subsequent posts, 435,041 subsequent comments

Propensity Score Matching

Definition of Treatment and Control



Treatment Group (64,514 users)

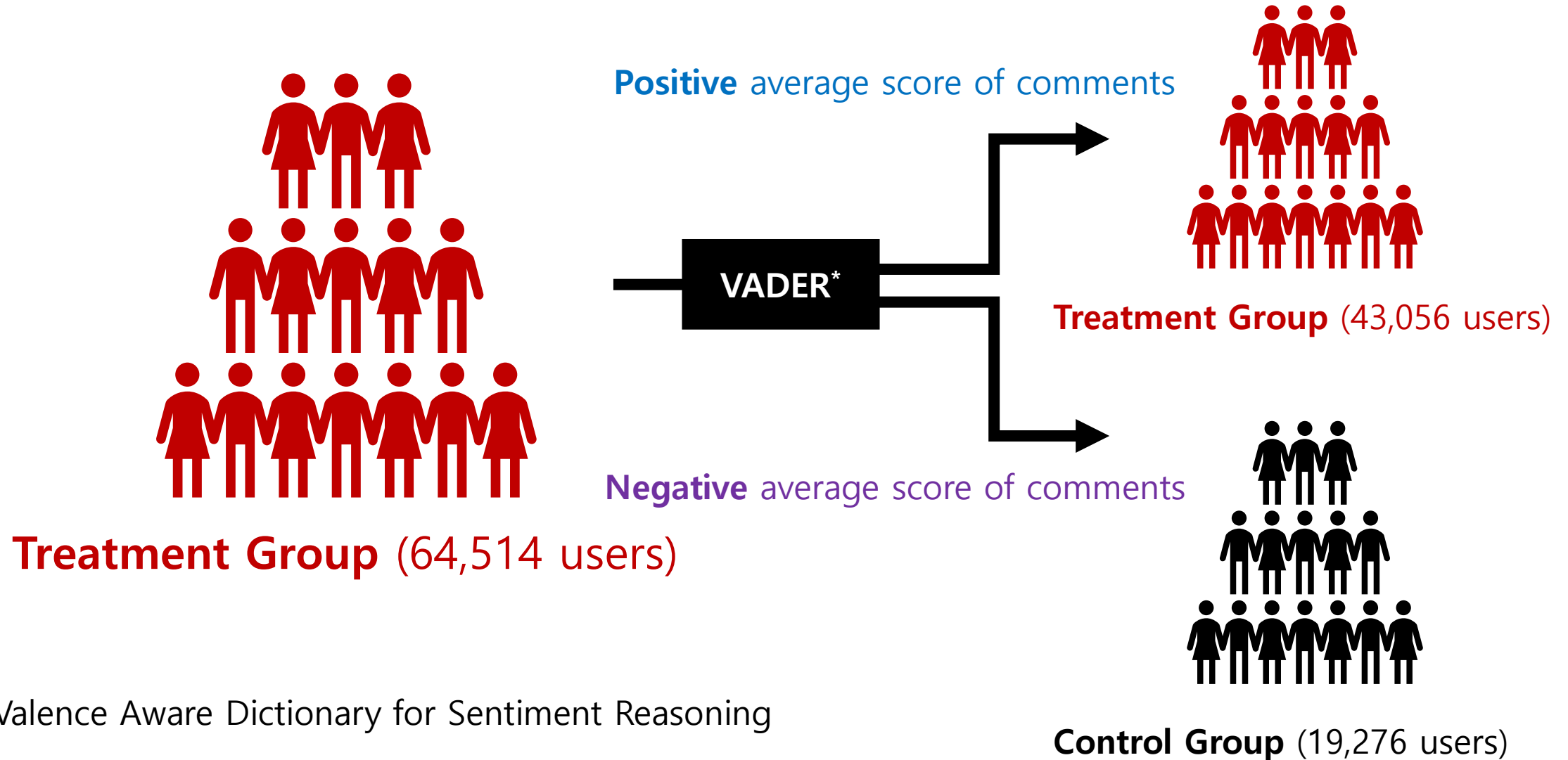


Control Group (41,225 users)

(**Treatment factor** : receiving at least one comments at the first post)

Propensity Score Matching

Definition of Treatment and Control (Cont'd)



* Valence Aware Dictionary for Sentiment Reasoning

Propensity Score Matching

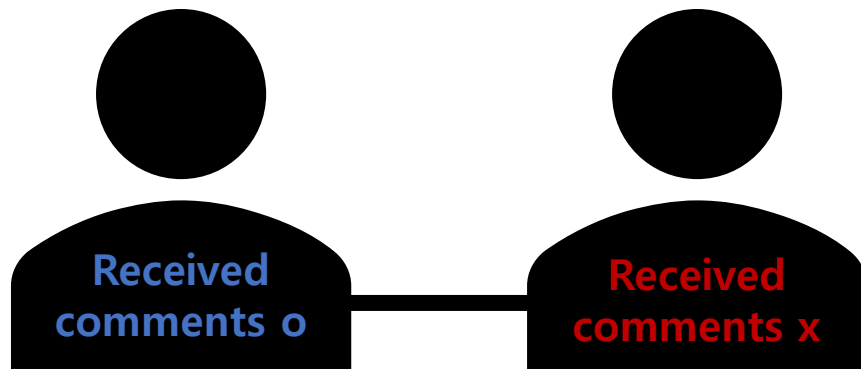
Covariate Selection

- **Word Count** : Number of words in first post's content(title + subtext).
- **20 LDA topic score** : first post's LDA topic score.
- **LIWC features**
- **Empath features** : 20 Empath categories related to MH.
- **VADER features**
- **Dummy variables for OMHCs**

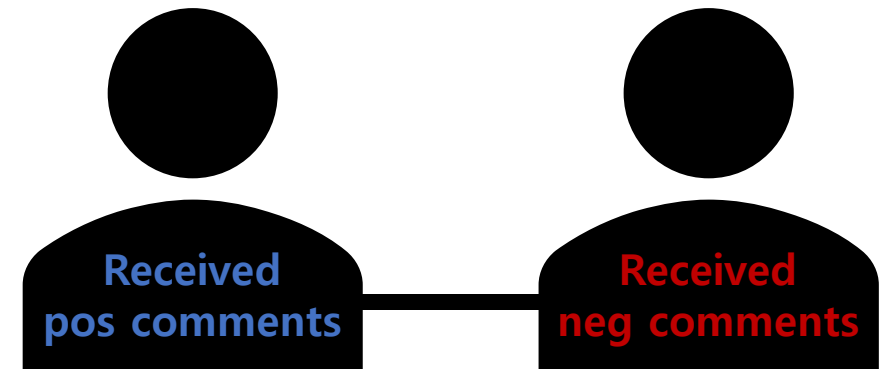
Propensity Score Matching

Matching and Validation

- Matching users with similar covariates.



39,420 pairs



19,086 pairs

- **ASMD*** of all covariates after matching were less than **0.1**.

* Absolute Standardized Mean Difference

3. Result

Return Probability (RQ1)

Comment Group vs No Comment Group

Variable	Comment Group	No Comment Group	Chi square
Post in the same OMHC	25.4%	20.3%	296.125***
Post in any OMHC	30.8%	25.6%	261.011***
Comment in the same OMHC	39.5%	25.7%	1699.358***
Comment in any OMHC	43.0%	29.0%	1669.398***

Table 1: Comparing the return probability of “comment group” and “no comment group”. * = $p < .05$, ** = $p < .01$, * = $p < .001$.**

Return Probabilty (RQ1) (Cont'd)

Positive Comment Group vs Negative Comment Group

Variable	Positive Group	Negative Group	Chi square
Post in the same OMHC	25.1%	25.9%	3.487
Post in any OMHC	30.7%	31.7%	4.410*
Comment in the same OMHC	40.3%	38.4%	13.912***
Comment any OMHC	44.0%	42.1%	13.465***

Table 2: Comparing the return probability of “positive comment group” and “negative comment group”

Return Speed (RQ2)

Comment Group vs No Comment Group

Variable	Comment Group Mean(Num.)	No Comment Group Mean(Num.)	t statistic
Post in the same OMHC	53.7 (7219)	57.6 (5010)	-2.682**
Post in any OMHC	56.5 (12151)	58.3 (10109)	-1.531
Comment in the same OMHC	30.8 (6914)	41.0 (4726)	-7.944***
Comment in any OMHC	33.1 (8423)	44.3 (5939)	-9.356***

Table 3: Comparing the return speed (days) of “comment group” and “no comment group”

Return Speed (RQ2) (Cont'd)

Positive Comment Group vs Negative Comment Group

Variable	Positive Group Mean(Num.)	Negative Group Mean(Num.)	t statistic
Post in the same OMHC	53.8 (3485)	53.1 (3569)	0.368
Post in any OMHC	55.9 (5850)	55.2 (6041)	0.483
Comment in the same OMHC	31.6 (3324)	29.8 (3394)	1.159
Comment in any OMHC	33.8 (4106)	32.2 (4180)	1.132

Table 4: Comparing the return speed (days) of “positive comment group” and “negative comment group”

Comment Sentiment (RQ3)

Comment Group vs No Comment Group

Variable \ k	1	2	3	4	5
Post in the same OMHC	-0.001 (-0.227,-0.226)	-0.003 (-0.245,-0.242)	-0.021 (-0.250,-0.229)	-0.013 (-0.249,-0.236)	-0.015 (-0.246,-0.231)
Post in any OMHC	-0.009 (-0.244,-0.236)	-0.005 (-0.257,-0.252)	-0.021 (-0.262,-0.241)	-0.017 (-0.265,-0.248)	-0.013 (-0.262,-0.248)
Comment in the same OMHC	-0.007 (0.149,0.155)	0.004 (0.158,0.154)	-0.005 (0.149,0.154)	0.001 (0.146,0.146)	-0.001 (0.145,0.146)
Comment in any OMHC	0.001 (0.154,0.153)	0.003 (0.157,0.154)	-0.003 (0.152,0.154)	0.001 (0.150,0.149)	0.002 (0.147,0.145)

Table 5: The difference in the sentiment score of subsequent k comments/posts between “comment group”(former) and “no comment group”(latter), and their respective values.

<VADER sentiment value>

-1 : most negative / 1 : most positive

Comment Sentiment (RQ3) (Cont'd)

Positive Comment Group vs Negative Comment Group

Variable \ k	1	2	3	4	5
Post in the same OMHC	0.041** (-0.234,-0.275)	0.033* (-0.246,-0.279)	0.053** (-0.239,-0.292)	0.055** (-0.229,-0.284)	0.041* (-0.234,-0.275)
Post in any OMHC	0.038** (-0.255,-0.293)	0.031* (-0.261,-0.292)	0.047** (-0.257,-0.304)	0.051** (-0.251,-0.302)	0.041* (-0.263,-0.303)
Comment in the same OMHC	0.184*** (0.207,0.023)	0.153*** (0.202,0.049)	0.138*** (0.191,0.053)	0.125*** (0.187,0.063)	0.110*** (0.184,0.073)
Comment in any OMHC	0.169*** (0.205,0.036)	0.138*** (0.196,0.058)	0.127*** (0.189,0.062)	0.116*** (0.187,0.070)	0.104*** (0.183,0.079)

Table 6: The difference in the sentiment score of subsequent k comments/posts between “positive comment group” (former) and “negative comment group” (latter), and their respective values.

<VADER sentiment value>
-1 : most negative / 1 : most positive

4. Discussion

Impact of Receiving Social Support

- Social support provision ↑ , Self-disclosure ↑ ,
Not effect on users' subsequent sentiment expression

Impact of Receiving Positive Social Support

- Positive comment group : Positive Social support provision ↑
- Negative Comment group : return quickly to publish posts