Unintended Emotional Effects of Online Health Communities: A Text Mining-Supported Empirical Study

Publication: MIS Quarterly, 47(1), 195-226

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February 28, 2024

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Note: For the convenience of discussion, the No. of figures and tables in this slide are consistent with those in the original paper.

Introduction

Research Background

Definition and Purpose of OHCs: Online health communities (OHCs) are platforms where users exchange information about diseases, playing a crucial role in health management.

Study Focus: The primary interest of the study is the impact of patients' involvement in OHCs on their emotional status.

Benefits of Understanding OHCs: Understanding OHCs' emotional impact on patients is critical for improving OHC management and support for mental disease patients.

Research Questions

Do OHC interactions always benefit patients?

- What is the emotional impact of patient involvement in OHCs, particularly on their emotional status?
- How do emotional support and auxiliary content within OHCs affect both the targeted and unintended audience?
- Can the differentiation between emotional support and auxiliary content help in understanding the unintended emotional impacts of OHCs?

Contributions

- **Identification of Negative Impacts:** Discovery that emotional support in OHCs can negatively affect unintended recipients due to social comparison, enriching theoretical understanding and highlighting the need for mitigation strategies.
- **Differentiation Between Support Types:** Demonstrates the critical need for distinguishing emotional support from auxiliary content to identify off-target emotional support impacts.
- **Technical Advancement:** Development of a deep learning model to differentiate emotional support from auxiliary content, outperforming existing algorithms and offering a methodological tool for further studies.

Literature Review

Studies on the Emotional Impact of OHCs

Previous research tend to attribute OHCs' emotional impact to emotional support, highlighting its positive effects on stress and depression management.

- **Bidirectional Impact**: Studies like those by Yoo et al. (2014) and Chen et al. (2019) demonstrate that both giving and receiving emotional support can significantly affect users' emotional states, with communication competence playing a moderating role.
- **Antecedents of Emotional Support**: Some research has also focused on factors that influence perceived emotional support, such as engagement with discussion boards and social networking features within OHCs, which are shown to enhance emotional support satisfaction.
- **Beyond Emotional Support**: A few studies have begun exploring other factors affecting emotions in OHCs, like the sentiment of replies and user participation, indicating the presence of emotional contagion and the importance of individual actions within these communities.

To extend the existing literature, they focus on users who are either the provider or the target of emotional support to examine the emotional impact of OHCs.

Emotional Contagion in OHCs

- **Introduction to Emotional Contagion**: This theory, traditionally associated with emotion transfer in face-to-face interactions, has been extended to computer-mediated communication, including social networks and, by extension, OHCs.
- **Research Findings**:
  - Studies have demonstrated that emotional contagion occurs in online settings, with positive emotions transferring more readily than negative ones.
  - However, OHCs present a unique anonymous environment due to their open.
- **Gaps in Research**: Despite evidence of emotional contagion in various online platforms, there is limited research specifically focused on its dynamics within OHCs. Earlier studies on OHCs like Lin et al. (2019) suggest the influence of reply sentiments on patients' emotions, but lack comprehensive evidence and identification.

This study aims to further investigates emotional contagion within OHCs, considering their unique characteristics and the sensitivities of their user base.

Research Gap

The Existing Problem:

- **Focus of Current Studies**: Previous research on Online Health Communities (OHCs) primarily concentrates on the positive impact of emotional support, neglecting how it and auxiliary content affect unintended audiences.
- **Oversight**: The unique open-audience format of OHCs and the emotional impact of non-supportive (auxiliary) content remain underexplored.

Why the Problem is Important?

- **Emotional Well-being**: Emotional well-being is crucial for patients with mental health issues, like depression, where improper emotional support can have severe outcomes.
- **Complex Dynamics**: The dynamics of support within OHCs, involving both direct emotional support and auxiliary content, influence the emotional states of all users, not just the intended recipients.
- **Safety and Efficacy**: Understanding the full spectrum of emotional impacts is vital for ensuring the safety and efficacy of OHCs as supportive environments for individuals with mental health conditions.

Not Solved Problem:

- **Lack of Comprehensive Analysis**: There's a gap in analyzing how OHCs' open audience format and auxiliary content contribute to unintended negative emotional impacts.
- **Need for Differentiation**: The absence of a clear differentiation between emotional support and auxiliary content in the literature hinders the understanding of their distinct effects on users' emotional well-being.
- **Methodological Limitations**: Existing studies lack the methodological tools to effectively dissect and analyze the nuanced emotional influences of OHCs, particularly regarding off-target emotional support and the role of auxiliary content.

This gap underscores the necessity for further research to decipher the complex emotional interplay within OHCs and develop strategies to mitigate potential negative impacts on users' mental health.

Theoretical Basis and Hypotheses

Understanding Support Seeker Dynamics in OHCs

- **On-target vs. Off-target Content**: Differentiates between on-target (directed at Seeker S) and off-target (directed at others) content.
- **Emotional vs. Auxiliary Content**: Emotional support aims to alleviate negative emotions, while auxiliary content includes informational support, discussions, and noise.

Emotional Impact of Content on Support Seekers

Then they could differentiate the posts in the MDD group into four groups for each support seeker based on whether they are the target of the posts and the purpose of the posts

- **Previous Studies' Focus**: Previous research primarily focused on emotional support directed at the focal support seeker.
- **Our Study's Focus**: Explores the impact of off-target emotional support, auxiliary content, and off-target auxiliary content.

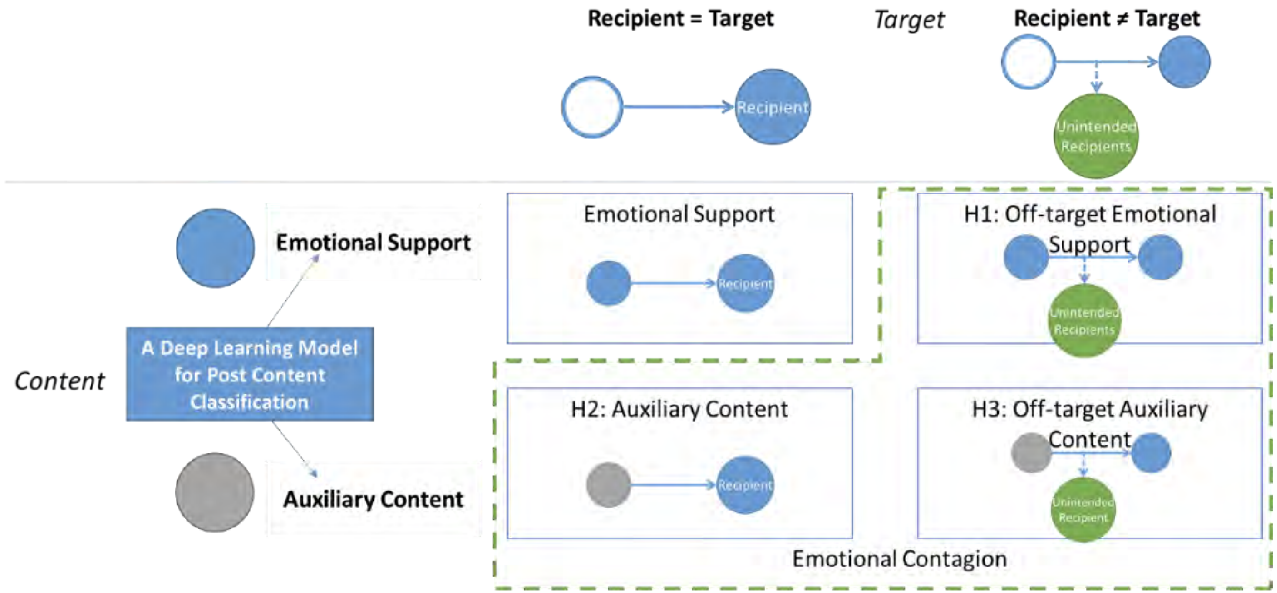

Figure 2. Illustration of the Framework for the Study

Effect of Off-Target Emotional Support

- **Mechanisms**: Empathy leads to shared emotional states; social comparison can cause feelings of inferiority or neglect.
- **Hypothesis H1**: The sentiment of the emotional support content targeting other support seekers will negatively influence the emotion of the support seeker (reflected by expression sentiment).

Effect of Auxiliary Content

- **Positive Impact**: Auxiliary content can lead to positive emotional contagion and encourage positive health-related actions.
- **Hypothesis H2**: The sentiment of the auxiliary content will positively influence the emotion of the targeted support seeker (reflected by expression sentiment).

Competing Effects of Off-Target Auxiliary Content

- **Mechanisms**: Empathy versus social comparison with less clear targets.

- **Hypotheses H3-0 and H3-1**:
  - H3-0: The sentiment of the auxiliary content targeting other support seekers will NOT influence the emotion of a support seeker (reflected by expression sentiment).
  - H3-1: The sentiment of the auxiliary content targeting other support seekers will negatively influence the emotion of a support seeker (reflected by expression sentiment).

Research Design

Research Context

Platform: Douban, a major Chinese social media site with 62 million users, focusing on liberal arts.

Feature: Interest groups for various topics, including a large group for major depressive disorders (MDD).

Group Details: Dedicated to individuals diagnosed with depression, encouraging discussions on coping strategies. Founded in 2008 with over 5,000 members by 2015.

Privacy Change: Became private shortly after data collection in 2015, restricting access to members only.

User Interaction:

- Allows starting discussions or replying to others in a thread, displayed in chronological order.
- Content varies from supportive responses to unrelated discussions.

Engagement: Automatic notifications for new replies in threads to keep members engaged.

PART I: Emotional Support Differentiation

- **Objective**: Differentiate posts based on target (original support seeker or not) and content type (emotional support or auxiliary content).
- **Challenge**: Manual screening impractical due to large data volume.

Compound Hierarchical Attention Networks (C-HAN) Model

- **Purpose**: Classify whether a focal post constitutes emotional support to the conversation target.
- **Structure Utilization**: Leverages sequence presentation and reply relationships in forum threads.
- **Components**:
  - **Initial Post Processing**: Uses BiLSTM layer for understanding help-seeking posts.
  - **Reply Relationship Modeling**: Applies HAN model to group and analyze related posts.
  - **Sequential Relationship Modeling**: Also uses HAN for posts in chronological sequence.

After capturing the three parts of the information as **three vectors**, we used a concatenate layer to combine them and fed that to a dense layer to conduct the classification task.

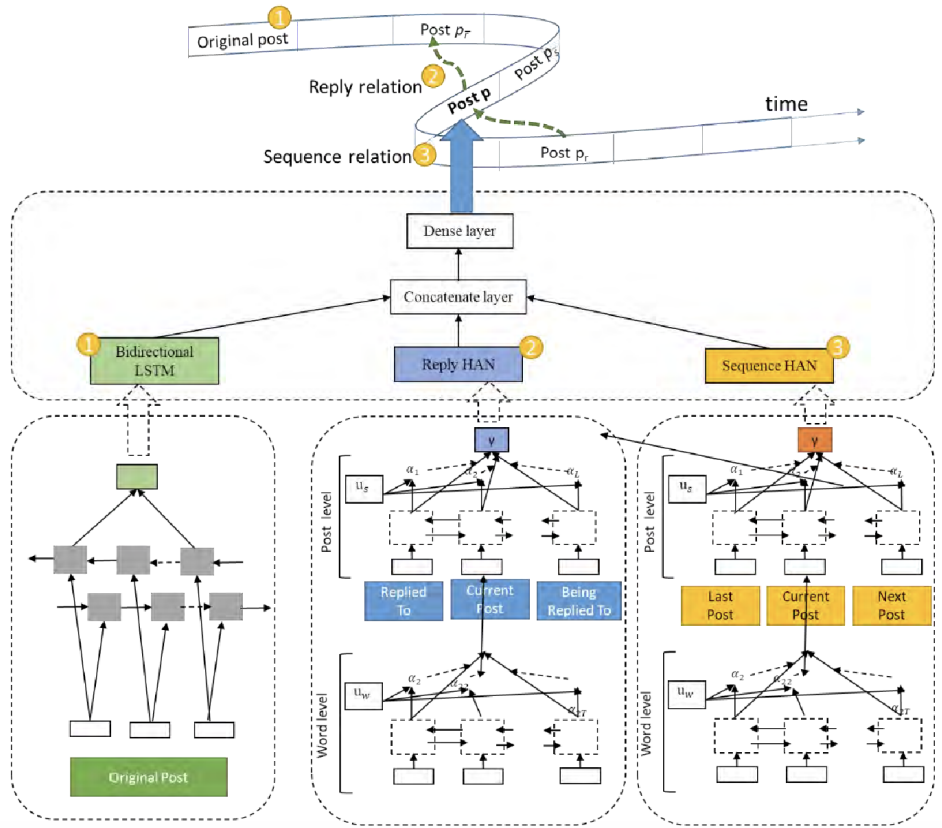

Figure 3. The Structure of the C-HAN Model for Emotional Support Identification

Model Training and Classification Effectiveness

- **Dataset**:
  - 901 randomly selected posts, coded by experts (gold standard);
  - substantial agreement achieved (Fleiss's kappa = 0.750);
  - 207 out of the 901 posts were labeled as emotional support.
- **Benchmarking**: Compared C-HAN model against SVM, decision tree, BiLSTM, and GCN models.
- **Evaluation**: Utilized metrics like AUC, accuracy, precision, recall, and F-measure.

Results and Model Performance

- **Highest AUC**: C-HAN model achieved 82.9% AUC, surpassing all baselines with balanced precision/recall/F-measure.
- **Accuracy**: C-HAN model had 84.7% accuracy, superior to other methods (GCN has a very low performance on emotional support).
- **Emotional Support Classification**: Demonstrated significant improvement over other models, especially in the focal task of classifying emotional support.

Note: For BiLSTM, GCN, and C-HAN, they conducted word embedding using a pretrained model as input, which captured the semantics and sequences of the (Chinese) words.

Table 2. Emotional Support Classification Performance

Table 2. Emotional Support Classification Performance								
	AUC	Accuracy	Emotional support			Auxiliary content		
			Precision	Recall	F1	Precision	Recall	F1
Decision tree	0.581***	0.776***	0.478***	0.467***	0.466***	0.848***	0.859***	0.853***
SVM (linear kernel)	0.690***	0.761***	0.477***	0.487***	0.463***	0.843***	0.842***	0.84***
SVM (radial kernel)	0.741**	0.811**	0.626	0.52***	0.533*	0.828**	0.848*	0.835*
BiLSTM	0.746***	0.800***	0.57**	0.568	0.588*	0.871	0.868**	0.869**
GCN	0.643***	**0.929*** **	0.225***	0.345***	0.272***	**0.972*** **	**0.952** **	**0.965*** **
C-HAN (our model)	**0.829**	*0.847*	**0.680**	**0.617**	**0.639**	*0.885*	*0.927*	*0.901*

Note: Largest value in bold. *p*-value for comparison with the C-HAN model: ***<0.01; **<0.05; *<0.1

- **Advantage**: C-HAN model effectively captures both textual content and inter-post relationships.
- **Implication**: Enhanced text classification performance supports the empirical study of emotional support in OHCs.

PART II: Emotional Impact Assessment

Emotional Impact Assessment Framework

- **Objective**: Model emotional changes of support seekers in Online Health Communities (OHCs) using econometric models.
- **Selection Criteria**: Focused on patients seeking help by manually screening initial thread posts.
- **Dependent Variable**: Emotion of support seekers measured by posting sentiment($SENTIMENT$), analyzed daily.

Econometric Model Specification

- **Model Overview**: Daily-level panel data model examines how previous day's posts affect support seeker's sentiment.
- **Formula**: $SENTIMENT_{i,t} = \alpha + \beta_1 SENTIMENT_{i,t-1} + X_{i,t-1}\Gamma + Z_{i,t-1}\phi + \varphi_t + \eta_i + \varepsilon_{i,t}$
  - $SENTIMENT_{i,t-1}$: Posting sentiment on day t-1.
  - $X_{i,t-1}$, $Z_{i,t-1}$: Vectors of independent and control variables respectively.
  - φ_t, η_i: Time-variant effects and support seeker heterogeneity.

Independent Variables and Controls

- **Independent Variables**: Sentiments of off-target emotional support(OT-EmoSupport), auxiliary content(AuxContent), and off-target auxiliary content(OT-AuxContent).
  - **Measurement Tools**: Chinese word segmentation and LIWC for sentiment analysis.
- **Control Variables**: Include number of replies(NumReply), informational support(InfoSupport), support-seeking content(SupportSeek), activeness(Active), and duration of support seeking(Duration).
- Time Effects:
  - Includ week-fixed effects and fixed effects for the days of the week (due to long panel with sparse data).
  - Adjust for public holidays and weekends.

Addressing Endogeneity Concerns

- **Instrumental Variables**: Historical post sentiments of support providers used to tackle measurement error concerns.
- **Reply Activity Analysis**: Considered support seekers' replies to posts as evidence of viewing and being influenced by those posts.(As shown in Figure 4)

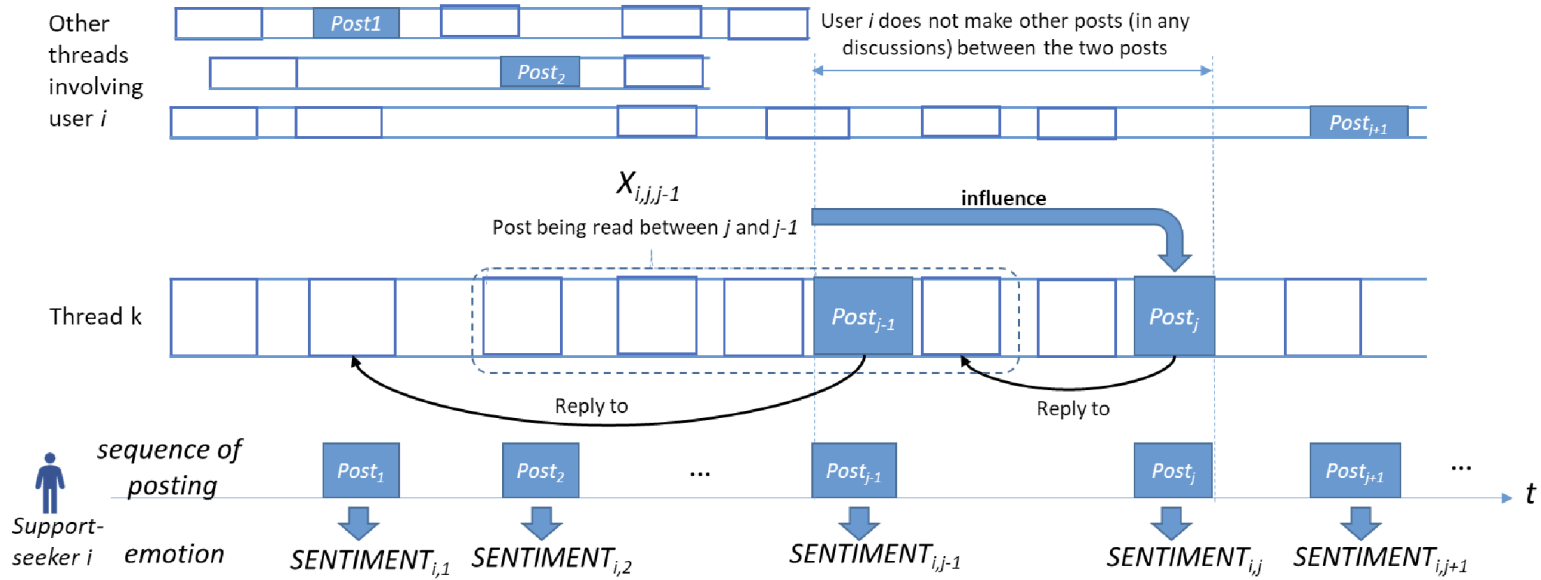

Figure 4. Illustration of the Empirical Setup on View before Reply

- **Formula**: $SENTIMENT_{i,j} = \alpha + \beta_1 SENTIMENT_{i,j-1} + X_{i,j,j-1}\Gamma + Z_{i,j-1}\phi + \varphi_t + \eta_i + \varepsilon_{i,t}$

Results

Data Overview and Preprocessing

- **Data Collection**: From Douban MDD group, spanning founding to January 6, 2015, with 3,565 threads and 47,247 posts by 5,013 users. Post-2011 update data used for analysis: 3,323 threads, 44,478 posts by 4,692 users.
- **Screening Process**: Initial posts manually screened to identify 1,489 discussion threads initiated by 1,098 MDD users seeking support. Agreement among coders (Fleiss's kappa = 0.714) indicated substantial agreement.

Summary Statistics

- **User Activity**: Most support seekers active for less than 10 days, posting fewer than 20 posts. Distinction made between regular support seekers and long-term users, focusing on the first 30 days of activity for analysis.
- **Content Analysis**: Using deep learning, identified 7,300 emotional support posts; the rest categorized as auxiliary content.

Methodological Approaches

- **Variable Calculation**: Averaged sentiment of posts from each content type for analysis.
- **Model Strengths**:
  - Captures exposure and influence dynamics.
  - Utilizes historical data to strengthen identification.
  - Employs robustness checks for accurate sentiment measurement.

Table 5. Regression Results for Testing Hypotheses

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	(1)	**(2)**	**(3)**	**(4)**
	Fixed effect	**Random effect**	**Instrumental variable**	**Between-reply**
***SENTIMENT*$_{i,t-1}$**	-0.143*** (-4.251)	-0.007 (-0.228)	0.087* (2.206)	-0.128*** (-4.599)
***EmoSupport*$_{i,t-1}$**	0.067# (1.775)	0.088* (2.515)	0.113* (2.573)	0.226*** (4.532)
***AuxContent*$_{i,t-1}$**	0.072** (2.614)	0.066* (2.516)	0.059# (1.657)	0.082** (2.666)
***OT-EmoSupport*$_{i,t-1}$**	-0.094* (-2.176)	-0.066# (-1.771)	-1.672# (-1.710)	-0.216# (-1.750)
***OT-AuxContent*$_{i,t-1}$**	0.010 (0.200)	-0.018 (-0.399)	-0.221 (-0.601)	0.003 (0.040)
***NumReply*$_{i,t-1}$**	0.151 (1.463)	0.209** (2.398)	0.919* (1.993)	0.268 (0.796)
***InfoSupport*$_{i,t-1}$**	-0.020 (-0.228)	-0.022 (-0.328)	-0.055 (-0.630)	-0.020*** (-2.803)
***SupportSeek*$_{i,t-1}$**	-0.073 (-0.718)	-0.071 (-0.765)	-0.081 (-0.660)	
***Active*$_{i,t-1}$**	0.224 (1.003)	-0.027 (-0.240)	0.025 (0.199)	0.062* (1.996)
***Duration*$_{i,t-1}$**	0.007 (0.344)	0.004 (0.241)	0.016 (0.917)	-0.060 (-1.244)
Week	Yes	Yes	Yes	Yes
Day of the week	Yes	Yes	Yes	Yes
Holiday	Yes	Yes	Yes	Yes
# observations	1994	1994	1994	2937
# subjects	469	469	469	433
***R*-squared**	0.151	0.136	-0.010	0.287

Note: *t*-statistic in parentheses; #$p < 0.10$; *$p < 0.05$; **$p < 0.01$, ***$p < 0.005$

Econometric Models and Hypotheses Testing

- **Model Setup**: Daily-level panel data model to assess the emotional impact of various content types on support seekers' sentiment.
- **Findings**:
  - Positive association between the sentiment of received emotional support and support seekers' emotions.
  - Negative impact of off-target emotional support, suggesting potential harm alongside intended support.
  - Positive effect of auxiliary content, indicating non-targeted positive expressions can still be beneficial.

Table 8. Summary of Hypotheses Testing Results

Table 8. Summary of Hypotheses Testing Results

ID	Content type	Recipient	Hypothesized emotional impact	Finding
H1	Emotional support	Non-target support seeker	Negative impact on the expression sentiment	Supported
H2	Auxiliary content	Targeted support seeker	Positive impact on the expression sentiment	Supported
H3-0	Auxiliary content	Non-target support seeker	No impact on the expression sentiment	Supported
H3-1			Negative impact on the expression sentiment	Not supported

Robustness Checks

- **Public Holidays Control:** Included the second day as variables to mitigate lag effects. Results remain consistent.
- **Post-Midnight Activity:** Analysis period adjusted to start at 6 am to accurately reflect user activity. Outcomes consistent and significant.
- **Early Platform Engagement:** Focused on the first five days of user activities, minimizing long-term user behavior variability. Findings generally consistent.
- **Post-level Analysis:** Limited posts within specific windows before replies and analyzed user engagement with content. Reinforced findings' robustness.
- **User Thread Engagement:** Validated through access logs, targeting engagement between replies. Results consistent with the main model.

Extent Exploration: Mechanisms

Independence between On-Target and Off-Target Content

- **Key Finding**: No significant interaction effects between on-target and off-target content, indicating they operate through independent mechanisms.
- **Implication**: The emotional support a user receives does not alter the negative impact of seeing others receive support, suggesting separate pathways for their effects on user emotions.

Social Comparison Mechanism - Before/After Emotional Support

- **Analysis**: Divided off-target emotional support into two categories — before and after the focal user receives emotional support.
- **Results**:
  - Strong negative effect of off-target support when no emotional support is received by the focal user.
  - No significant effect when the focal user has received emotional support.
- **Interpretation**: Emotional support received alters the user's position in social comparison, affecting the impact of seeing others supported.

Social Comparison and the Extent of Depression

- **Observation**: The negative impact of off-target emotional support varies with the initial emotional state of the support seekers.
- **Findings**:
  - Users expressing negative sentiments in their initial posts experienced a stronger negative effect from off-target emotional support.
  - Users with neutral or positive initial sentiments were less affected.
- **Conclusion**: The severity of depression influences how users engage in social comparison, with those in worse conditions more negatively impacted by off-target emotional support.

Table 9. Mechanisms

Table 9. Mechanisms					
	(1)	(2)	(3)	(4)	(5)
	Interaction	Interaction	Before/after support	Initial emotion < 0	Initial emotion ≥ 0
$SENTIMENT_{i,t-1}$	-0.143*** (-4.225)	-0.143*** (-4.251)	-0.143*** (-4.216)	-0.224*** (-4.131)	-0.148*** (-3.031)
$EmoSupport_{i,t-1}$	0.066# (1.759)	0.069# (1.821)	0.070# (1.844)	0.148** (2.585)	-0.038 (-0.778)
$AuxContent_{i,t-1}$	0.072** (2.616)	0.071* (2.581)	0.071* (2.580)	-0.007 (-0.146)	0.102*** (2.859)
$OT\text{-}EmoSupport_{i,t-1}$	-0.096* (-2.082)	-0.094* (-2.165)		-0.249** (-2.615)	-0.040 (-0.860)
$OT\text{-}AuxContent_{i,t-1}$	0.010 (0.203)	0.006 (0.138)	0.009 (0.193)	-0.009 (-0.093)	0.018 (0.288)
$EmoSupport_{i,t-1}$ * $OT\text{-}EmoSupport_{i,t-1}$	0.007 (0.359)				
$AuxContent_{i,t-1}$ * $OT\text{-}AuxContent_{i,t-1}$		0.006 (0.331)			
$OT\text{-}EmoSupport\ Before_{i,t-1}$			-0.093# (-1.772)		
$OT\text{-}EmoSupport\ After_{i,t-1}$			-0.006 (-0.077)		
$NumReply_{i,t-1}$	0.157 (1.464)	0.152 (1.475)	0.131 (1.288)	0.165 (1.050)	0.184 (1.251)
$InfoSupport_{i,t-1}$	-0.021 (-0.237)	-0.021 (-0.237)	-0.013 (0.146)	0.017 (0.118)	-0.108 (-0.798)
$SupportSeek_{i,t-1}$	-0.073 (-0.709)	-0.074 (-0.722)	-0.072 (-0.705)	0.011 (0.065)	-0.116 (-0.976)
$Active_{i,t-1}$	0.229 (1.007)	0.214 (0.946)	0.223 (0.991)	0.477 (0.859)	0.418 (1.576)
$Duration_{i,t-1}$	0.007 (0.334)	0.007 (0.343)	0.007 (0.352)	-0.020 (-0.503)	-0.010 (-0.405)
Fixed effect	Yes	Yes	Yes	Yes	Yes
# observations	1994	1994	1994	829	1165
# subjects	469	469	469	235	234
***R*-squared**	0.151	0.151	0.150	0.319	0.214

Note: *t*-statistic in parentheses; # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$, *** $p < 0.005$

Discussion and Implications

Discussion

The Need for Content Differentiation

- **Objective**: Differentiate emotional support from auxiliary content to accurately assess OHC impacts.
- **Findings**: Without content differentiation, only the positive impacts of on-target content are visible, missing the crucial negative effects of off-target content.
- **Methodology**: Utilized LDA model to identify topics within emotional and auxiliary content, revealing distinct subjective and objective discussions respectively.

Toward a Proper Intervention

- **Paradox**: Direct emotional support helps targeted users but may harm others by being public.
- **Solution**: Explore other intervention aspects like support volume and length, avoiding the need for private channels while addressing the open community's objectives.

Table 10. The Need to Differentiate Emotional Support and Auxiliary Content

Table 10. The Need to Differentiate Emotional Support and Auxiliary Content		
	(1)	(2)
	Differentiate	Do not differentiate
SENTIMENT$_{i,t-1}$	-0.143*** (-4.251)	-0.145*** (-4.280)
EmoSupport$_{i,t-1}$	0.067# (1.775)	0.090*** (3.306)
AuxContent$_{i,t-1}$	0.072** (2.614)	
OT-EmoSupport$_{i,t-1}$	-0.094* (-2.176)	-0.029 (-0.646)
OT-AuxContent$_{i,t-1}$	0.010 (0.200)	
NumReply$_{i,t-1}$	0.151 (1.463)	0.126 (1.228)
InfoSupport$_{i,t-1}$	-0.020 (-0.228)	0.020 (0.687)
SupportSeek$_{i,t-1}$	-0.073 (-0.718)	
Active$_{i,t-1}$	0.224 (1.003)	0.213 (0.964)
Duration$_{i,t-1}$	0.007 (0.344)	0.009 (0.437)
Fixed effect	Yes	Yes
# Observations	1994	1994
# Subjects	469	469
***R*-squared**	0.151	0.149

Note: *t*-statistic in parentheses; #$p < 0.10$; *$p < 0.05$; **$p < 0.01$, ***$p < 0.005$

As shown in Table 11

Support Volume and Length

- **Volume Impact**: Increasing the volume of emotional support positively affects targeted support seekers without significant off-target impacts.
- **Length Impact**: Longer off-target emotional support positively influences unintended audiences, suggesting a nuanced approach to support provision.

Repeated Support and Number of Support Providers

- **Repeated Support**: More replies per replier don’t change emotions significantly.
- **Multiple Supporters**: Having more individuals provide emotional support benefits targeted users, advocating for a team approach in offering support.

Table 11. Volume and Length vs. Sentiment

Table 11. Volume and Length vs. Sentiment			
	(1)	(2)	(3)
Reply characteristic →	Volume	Length	# Replier
SENTIMENT$_{i,t-1}$	-0.148*** (-4.296)	-0.146*** (-4.272)	-0.149*** (-4.344)
Characteristic of EmoSupport$_{i,t-1}$	0.436# (1.891)	0.001 (0.636)	0.332** (2.425)
Characteristic of AuxContent$_{i,t-1}$	0.072 (0.373)	0.005* (2.215)	-0.008 (-0.112)
Characteristic of OT-EmoSupport$_{i,t-1}$	-0.155 (-0.594)	0.003# (1.833)	-0.108 (-0.842)
Characteristic of OT-AuxContent$_{i,t-1}$	0.047 (0.207)	-0.001 (-0.565)	0.016 (0.272)
Vol Per Replier of EmoSupport$_{i,t-1}$			-0.108 (-0.592)
Vol Per Replier of AuxContent$_{i,t-1}$			0.002 (0.037)
Vol Per Replier of OT-EmoSupport$_{i,t-1}$			0.056 (0.424)
Vol Per Replier of OT-AuxContent$_{i,t-1}$			-0.091 (-1.530)
EmoSupport$_{i,t-1}$	0.046 (1.174)	0.063# (1.661)	0.047 (1.194)
AuxContent$_{i,t-1}$	0.067* (2.397)	0.067* (2.423)	0.069* (2.414)
OT-EmoSupport$_{i,t-1}$	-0.087# (-1.675)	-0.103* (-2.370)	-0.089# (-1.760)

Implications

- **Theoretical**: Validates emotional contagion theories in OHCs, highlighting the dual impact of emotional support and the significance of social comparison among depression patients.
- **Methodological**: Demonstrates the necessity of content differentiation to uncover the full spectrum of OHC impacts.
- **Practical**: Suggests leveraging the collective effort of multiple support providers and adjusting support style to mitigate negative effects on unintended audiences, optimizing OHCs as a supportive resource for depression patients.

Conclusion and Future Research

Theoretical and Practical Implications

- **Theoretical Contribution**: Enhances understanding of emotional influences within OHCs, emphasizing the importance of content differentiation.
- **Practical Implications**: Highlights the need for careful management of OHC interactions to prevent misunderstanding of OHC mechanisms and potential harm to users. Suggests OHC-based intervention strategies for improving mental health conditions.

Limitations and Directions for Future Research

- **Cultural Context**: The study's focus on a Chinese OHC raises questions about the generalizability of findings across different cultures.
- **Emotion Measurement**: Utilizes user expression sentiment as a proxy for emotions, suggesting the need for validation with additional measures.
- **Auxiliary Content Types**: Proposes examining the heterogeneous effects of various types of auxiliary content and their potential to induce social comparison.
- **Generalizability**: Recommends extending the research to OHCs for other disorders to test the applicability of findings.

Thank You !