A QUANTITATIVE ANALYSIS OF LANGUAGE CHANGES DURING COVID-19.

Internship Presentation

Dr. Aasritha Kurri, BDS

PSM-Biomedical and Health Informatics

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Carolina Health Informatics Program

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

BACKGROUND

Professional Background- Dental surgeon, PSM-BMHI

Passionate AI in medicine, Data analytics, Decision Modelling and Natural Languguae Processing.

INTERNSHIP- SPRING 2022

Faculty Advisor: Dr. Lisa Vizer

Core Faculty, Carolina Health Informatics Program

University of North Carolina at Chapel Hill.

Carolina Health
Informatics Program

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

INTERNSHIP LEARNING OBJECTIVES

Research Process
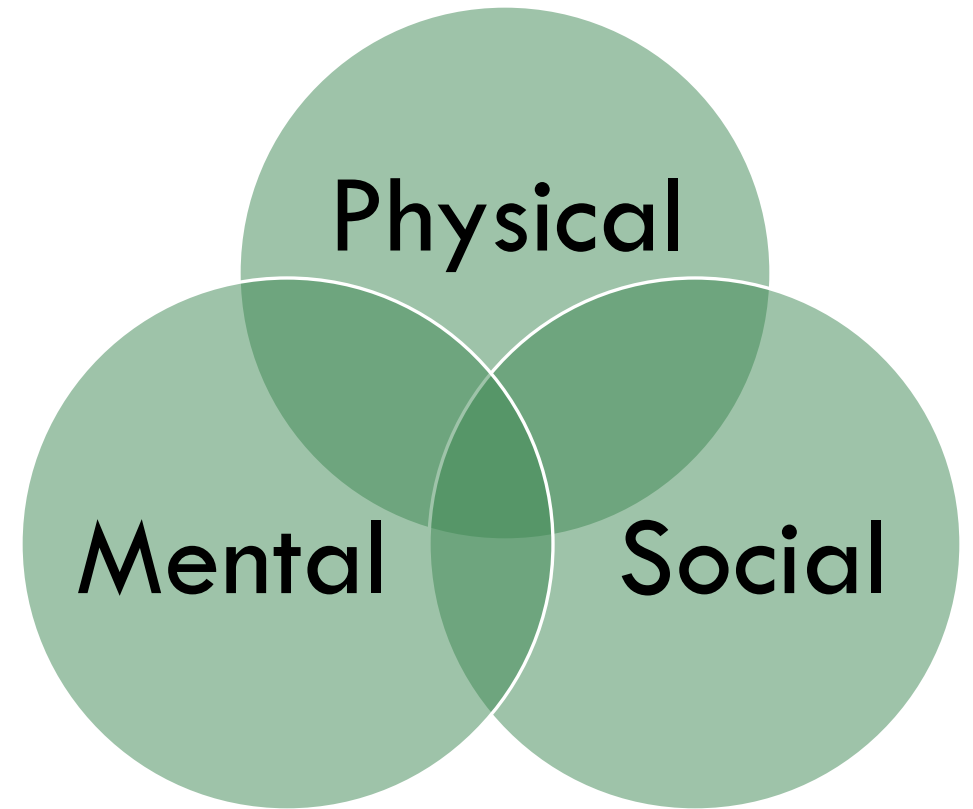
Programming Languages

Integration of Informatics to Research

OVERVIEW

- Study Background

- Importance of the Study

- Aims and Objectives

- Overview of the Study process

- Methodology

- Participant Recruitment Process

- Data analytics

- Challenges and Lessons Learned

- References

BACKGROUND

The WHO defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". (WHO).

LITERATURE REVIEW

APNS (Adverse Post Traumatic Neuropsychiatry sequelae)

Including

Posttraumatic stress (PTS),

Post-concussion syndrome (PCS),

Depression,

and regional or wide-spread pain.
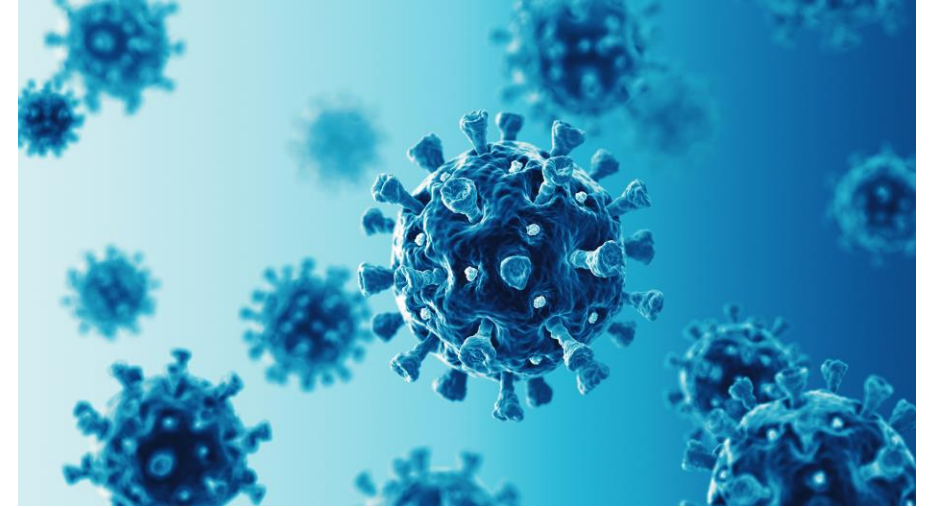
Pre- existing Mental illness

LITERATURE REVIEW

COVID-19 pandemic is a traumatic event

Direct
- Infection

Indirect
- Factors

IMPORTANCE OF THE STUDY

- Pandemic is not just a medical phenomenon.

- Mitigation measures like isolation, social distancing, and closure of educational institutes, workplaces, and entertainment venues force people to stay in their homes and often negatively impact social and mental health.

- Mental health studies: Use of language data from social media.

AIMS AND OBJECTIVES

The aim of this study is to identify changes in the language during the COVID-19 pandemic in a population with or without a history of trauma.

RESEARCH QUESTIONS

❑ How does language change during the COVID-19 pandemic in people with recent trauma
History?

❑How do demographics affect language during the pandemic in this population?

❑ How do direct COVID-19 factors, such as illness and job loss, affect language
during the pandemic in this population?

METHODOLOGY OF THE STUDY

Participant Recruitment Process

Building and conducting an online survey.

using UNC Qualtrics

collect the language data using Twitter handles to extract the tweets.

using R

Analysis of the data and interpretation of the results.

Using Python

PARTICIPANT RECRUITMENT PROCESS

- Flyers will be posted on UNC campus.

- Recruitment emails will be sent to CHIP email list.

- Subjects privacy protection.

How did our language change during COVID-19?

You may be able to participate in this study:
- If you are 18 or older.
- If you have used Twitter since at least January 2019.

♥ ♥ ♥

We are examining language changes during COVID-19 by using data from Twitter posts. Although you will not directly benefit from this research, others may benefit in the future as we learn how language changes in response to traumatic events such as COVID-19.

FOR MORE INFORMATION

SURVEY

DATA ANALYTICS

➢**Twitter Developer account**

➢**Programming Languages**

❖Python

❖R

LIWC-LINGUISTIC INQUIRY AND WORD COUNT

By Pennebaker and Chung, includes dimensions like:

➤ Positive and negative emotion categories.

➤ Cognitive processes.

➤ Relativity-related words.

➤ Traditional content dimensions.

CHALLENGES AND LESSONS LEARNED

- Literature Review

- Formulating research questions

- CITI training

- IRB application process

- Research Grant Process and Methodology

- Integrating Informatics to research

- Privacy Restrictions

- Twitter developer account- Delay in activation

THANK YOU

Dr. Aasritha Kurri, BDS

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REFERENCES

1. PSYCHOLOGICAL ASPECTS OF NATURAL LANGUAGE USE: Our Words, Our Selves James W. Penne baker, Matthias R. Mehl, and Kate G. Niederhoffer Department of Psychology, University of Texas at Austin, Austin, Texas 78712; e-mail: Pennebaker@psy.utexas.edu, Mehl@psy.utexas.edu

2. COVID-19-associated brief psychotic disorder Colin M Smith, Jonathan R Komisar,XAhmad Mourad ,Brian R Kincaid

3. Why the COVID-19 pandemic is a traumatic stressor Victoria M E Bridgland , Ella K Moeck , Deanne M Green 1, Taylor L Swain , Diane M Nayda , Lucy A Matson , Nadine P Hutchison , Melanie K T Takarangi. 2021 Jan 11;16(1):e0240146. doi: 10.1371/journal.pone.0240146. eCollection 2021.

4. Psychosocial Effects of the COVID-19 Pandemic: Large-scale Quasi-Experimental Study on Social Media Koustuv Saha , John Torous , Eric D Caine ,, Munmun De Choudhury PMID: 33156805,PMCID: PMC7690250, DOI: 10.2196/22600

5. Small Number of Covid Patients Develop Severe Psychotic Symptoms Small Number of Covid Patients Develop Severe Psychotic Symptoms - The New York Times (nytimes.com)

6. Katie Chadd, Impact of COVID-19 on the Speech and Language Therapy Profession and Their Patients. Impact of COVID-19 on the Speech and Language Therapy Profession and Their Patients (nih.gov)

7. Görüş, S. (2016). Body defense. In: Ovayolu N., & Ovayolu Ö. (Eds), *Pathophysiology a clinical approach*, 2nd edn (pp. 31–50), Çukurova Nobel Tıp Kitabevi.

8. SM Didar Ul Islam Exploring COVID-19 stress and its factors in Bangladesh: A perception-based study. Exploring COVID-19 stress and its factors in Bangladesh: A perception-based study - PubMed (nih.gov)