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Can suicide risk and emotional states be detected in Twitter and Instagram posts of individuals at risk?

Submission date
09/05/2022

Recruitment status
No longer recruiting

Registration date
08/06/2022

Overall study status
Completed

Last Edited
08/08/2022

Condition category
Mental and Behavioural Disorders

[X] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
With over 800,000 deaths every year, suicide has become a global public health priority and affects especially the young population. Social media has already proven its potential for real-time detection of mental health disorders such as depression or post-traumatic stress disorder. Recent studies are now revealing the potential of social media in suicide prevention. These new approaches are developing real-time identification of individuals at risk, either by people or by computer language processing systems. The objective of this study is to continue these efforts for further validation, in this case, in Spanish social media.

The present study is the continuation of the Tweetcare project and aims to compare Twitter and Instagram posts of people who have a history of suicide behavior from individuals with no reported suicidal symptoms in the last year to clarify if suicide risk can be detected by social media.

Who can participate?
Adults aged 18 years and over who are active users of Twitter and Instagram.

What does the study involve?
The content of the publication of social media profiles will be analyzed with a computer tool developed by "machine learning" techniques. This tool allows the detection of emotions and potential risk posts from users on the social networks Twitter and Instagram through artificial intelligence. If during data computer processing, a profile is detected and classified as high risk, we will contact the participant to be informed of this fact to contact their reference health services.

What are the possible benefits and risks of participating?
There are no known benefits to participants
There are no known risks to participants

Where is the study run from?
University of Zaragoza (Spain)

When is the study starting and how long is it expected to run for?
March 2021 to May 2023.

Who is funding the study?
This project is not funded by any institution or company.

Who is the main contact?
Bárbara Oliván-Blázquez, bolivan@unizar.es,
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Contact information

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Study information

Scientific Title
Can suicidal behavior be detected by analysing the emotional content and suicide risk assessments of Twitter and Instagram posts of individuals with a history of suicidal behavior in the last year, compared with individuals reporting nonsuicidal behavior?

Acronym
#SocialMediaCare

Study objectives
1. Descriptive analysis of the emotional states and suicide risk in the social media posts in a population with no reported suicidal behavior and a population with reported suicidal behavior in the last year.
2. Descriptive analysis of the emotional states and suicide risk in the social media posts in a population with no reported suicidal behavior but depression or other mental pathologies and a population with reported suicidal behavior in the last year.
3. There will be differences in the emotional content of the posts in the population with no reported suicidal behavior and the population with reported suicidal behavior in the last year.
4. There will also be differences between individuals with no reported suicidal behavior but depression or other mental pathologies and the population with reported suicidal behavior in the last year.
5. There will be differences in the suicide risk assessment of the posts in the population with no reported suicidal behavior and in the population with reported suicidal behavior in the last year.
6. There will also be differences in the population with no reported suicidal behavior but depression or other mental pathologies and the population with reported suicidal behavior in the last year.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 20/04/2022, Clinical Research Ethics Committee of Aragón (Comité Ético de Investigación Clínica de Aragón, CEIC Aragón, Instituto Aragonés de Ciencias de la Salud (IACS), Centro de Investigación Biomédica de Aragón (CIBA), Avenida San Juan Bosco 13, Zaragoza 50009, Spain; +34 976 71 5836; ceica@aragon.es), CEICA number PI21-164

Primary study design
Observational

Study design
Observational cross-sectional cohort study

Study type(s)
Screening

Health condition(s) or problem(s) studied
Suicide risk

Interventions
Participants will complete an online survey and agree to the extraction of information from their social media posts. Enrolment to survey end will be approximately 15 min. When their profiles are not public, there will be a second phase in which we will contact participants to ask for permission to view their content from the 12 months prior to registration. There is no follow-up. The total duration of the participation for those who need to give permission is no longer than 60 days. Emotional content and suicide risk in the online social media posts of healthy individuals, individuals with depression or other mental pathologies, and a population with reported suicidal behavior in the last year based on automatic classification and expert evaluations.

Intervention Type
Other

Primary outcome(s)
1. Suicide risk of individuals is measured using SBQ (Suicidal Behaviors Questionnaire) and Plutchik Suicide Risk Scale
2. Suicide risk in the content of social media posts is measured on a scale of severity of suicide risk at the time of writing the tweet (real-time risk): from 0 (no existent risk) to 4 (extreme risk), by the computerized automatic classification system and also assessed by experts

Key secondary outcome(s)
1. Emotional content analysis, including 5 basic emotions: anger, sadness, joy, surprise, and fear, will be measured on a scale of 0-100, by the computerized automatic classification system and also assessed by experts.
2. Emotional valence, measured on a scale 0 to 100, by the computerized automatic classification system and also assessed by experts
3. Severity of general suicide risk, measured on a scale from 0 (no existent risk) to 4 (extreme risk), by the computerized automatic classification system and also assessed by experts.
4. Daily time spent on social media, measured on a self-reported scale.
5. Psychopathology in the last year, measured on a self-reported item.

Completion date
01/05/2023

Eligibility

Key inclusion criteria
1. People aged 18 years or over
2. People with the ability to read and write in Spanish
3. Active users or have used Twitter and/or Instagram in the last year

Participant type(s)
All

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Key exclusion criteria
1. People aged 17 years or under
2. People with cognitive impairment or impaired reality judgment.

Date of first enrolment
25/06/2022

Date of final enrolment
01/05/2023

Locations

Countries of recruitment
Spain

Study participating centre
AFDA Asociación de trastornos depresivos de Aragón
Calle Santa Lucía, 9
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Sponsor information

Organisation
Instituto de Investigación Sanitaria Aragón

ROR
https://ror.org/03njn4610

Funder(s)

Funder type
University/education

Funder Name
Instituto de Investigación Sanitaria de Aragón

Results and Publications

Individual participant data (IPD) sharing plan
Current IPD sharing statement as of 08/08/2022:
The datasets generated during and analysed during the current study will be available upon request only for replicability purposes. An anonymized dataset will be accessible after the study is completed. To request it please contact prevencionsuicidio@unizar.es.

Previous IPD sharing statement:
It is highly probable that, because of the nature of the data, the datasets analysed during the current study will be available only upon request and only for replicability purposes. Nevertheless, data-sharing plans for the current study are yet unknown and will be made available at a later date.

IPD sharing plan summary
Available on request