Background



Mechanisms of Mental Disorders

Mental health disorder has become a problem in many developed countries and in order to cope with it, a screening technologies that help us to check depression and stress have been sought.

Stress Check Methods

| Stress Check Methods and its Features | | | | |
|---------------------------------------|-------------|--|---|--|
| | | Methods to check stress and depression levels | Advantages | disadvanta |
| | Traditional | Biomarkers Saliva, blood, electrocardiogram etc. | • Accuracy (many evidences) | High cost Burdens on examinees Need specia equipment |
| | | Self-administered tests General Health Questionnaire (GHQ), Beck Depression Inventory (BDI) etc. | Non-invasive Remote Non-special equipment | •Reporting bi |
| | Novel | Voice-based evaluations | Easily Non-invasive Remote Non-special equipment | Need quiet environmen |
| | | | | |

Reporting bias is defined as "Selective revealing or suppression of information by subjects" (for example about past medical history, smoking, sexual experiences).



Stress Check using voice

Voice includes not only quantitative but also qualitative information.

> Formant (Voluntary Reaction) Vocal Code

Involuntary Reaction

Heart

The vocal cords are innervated by motor nerves and parasympathetic nerves, hence voices include voluntary and involuntary elements. Voices change due to various diseases. Voice pathophysiology analysis is an objective method to measure the involuntary elements of voices changed by illness.

MIMOSYS is easy to use



Mind Monitoring System



Vitality

From a single call or voice recording, the mental health at that time is measured as "the Vitality score"



🛜 🕯 📶 97% 📑 19:1 Result MIMOSYS®

MAIN V-TREND MA-TREND SUMMARY
Mental Activity Trend

8 39 42 44 47 50 83 62 57 64

1.14 1.28 2.11 2.25 3.11 3

 Tendency for the last week
 Tendency for the last 2 weeks

 Image: Comparison of the last 2
 Image: Comparison of the last 2

ODE WEEKLY MONTHLY

 DAILY
 WEEKLY
 MONTHLY

 Participant
 Participant
 Participant

65 mmm

Mental Activity

From multiple calls and voice recordings that stored over a long period of time, the long-term mental health is measured as "the **Mental** Activity score."

Emotion

Emotions used for calculation



MIMOSYS was able to separate patients from healthy subjects. However, in order to analyze the activity value of the mind, long-term measurement which is mental activity is necessary.







[Purpose] Using a monitoring application of the mind status of the Android version, explore its usefulness. **Subjects** Mainly men and women aged 16 years or older, which was intended for nurses [Method] Compared to one-year monitoring by the voice and every three months of the questionnaire (depression, onset, oral history, etc.). In order to evaluate the medical validity of MIMOSYS, we are recruiting volunteers and on progress for public researches at the University of Tokyo (until August 2017). Answering a simple questionnaire every three months is required, but you can actually use this application. c) 2018 PST Inc., All rights reserved.





Verified with over 7,000 subjects in various situations so far.