Validity and Usefulness of an Older Adult Jaw Closing Force Meter Adults

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ABSTRACT

We created a prototype for a new tool that measures the force required to shut the mandible with or without occlusal support the purpose of this study was to define the applicability of this instrument. Adults of all ages in good health who have occlusal support were enlisted. Data from younger individuals were used to test the meter's intra- and inter-rater reliability. We collected information on the older persons' age, sex, body mass index, remaining teeth, and dentures. Additionally, the occlusal force was measured using an existing occlusal force-measuring device, and the right and left were quantified using a metre. Significantly reproducible intra- and inter-rater correlation coefficients were found occlusal force and JCF were linked. Using multiple regressions.

Keywords: Jaw-closing force; Occlusal force; Oral function

INTRODUCTION

The population of the world is ageing quickly. Oral function is one of the bodily functions that deteriorates with age one of the many consequences of ageing on the body. Their occlusal force decreases as they lose teeth as they age Occlusal force has been linked to motor performance, falls, and cognitive decline, according to studies. As occlusal support is lost and dentures are worn, occlusal force likewise decreases which restricts the variety and firmness of food that can be consumed. The pressure that develops when the upper and lower teeth bite into one another is known as occlusal force. A device that visualises occlusal pressure and occlusal balance by biting a pressure-sensitive sheet over the entire dentition and scanning it with a specialised scanner is one of the instruments now utilised for measuring occlusal force. Another device that has been used measures the occlusal force when the device's tip is bit with the molar portion on one side. It is impossible to quantify occlusal force in edentulous people or those who lack occlusal support because of missing teeth. Both of these tools are only applicable to those who have occlusal support.

DESCRIPTION

The number of intra-class correlations between the participant's left and right sides varied, according to intra-rater reliability. It is simple to place the JCF meter's tip into the back of the mouth when the examiner measures the subject's right-side jaw-closing force while holding the instrument with the right hand because the left hand can retract the lips. However, the subject may have

transferred the JCF metre to the left hand when measuring the jaw-closing force on the left side in order to completely eliminate the lips with the right hand, or they may have measured the force while partially eliminating the lips. For the same examiner, the correlation coefficient was 0.811 for the right side and 0.691 for the left side [1].

Wearables Smart Phone Smartwatch Smart Device Monitoring Mental Health OR Mental Disorder Psychological Distress Mental Distress Stress Anxiety Generalized Anxiety Disorder Depression Major Depressive Disorder Only the title, abstract, and keywords were used for searches. The requirements to be clinical studies, and 1 joint real-life and clinical that were screened for this review Six conference papers with full-text availability and journal papers are included in the articles that meet the eligibility requirements. The papers that are included cover the following mental health topics: stress, depression that results in and mental workload We have decided to only tabulate the extracted data from the stress-related studies because the majority of the papers on PPG and stress concentrate on this topic The stress studies that were part of this review all followed a similar format in general. Data were initially gathered from participants using a wearable technology [2].

Participants were asked to complete a variety of stress tests in order to ensure that different levels of stress existed during the data collection. Even though there were many different formal stress tests, the majority of them followed this format a controlled period of rest, an intense activity to cause stress, a controlled period of rest and recovery Data were gathered, processed, and categorised based on participant stress levels after collection. The accuracy was

then compared to a There was only that discussed the use of PPG wearables to identify suicidal behaviour [3].

In this study, wrist-worn PPG devices were required to be worn for patients who had been admitted to the psychiatric unit or presented to the emergency room due to acute suicidality. The Columbia Suicide Severity Scale was required of the patients). In patients who had a decrease in of at least 25%, there was an increase in the high-frequency component of the. Chakma et al. conducted a study to determine whether the results of a PPG-based research watch could be predicted. Patients who wore the watch to gather data on their heart rate and autography, patients who completed a survey, and patients there are numerous design decisions to be made once a methodology for processing the PPG data has been chosen. One must choose the type of signal pre-processing to use for hardware, and one must also choose whether signal pre-processing is desired for ML. The majority of the studies in this review used one of two pre-processing techniques: either averaging/normalizing the PPG signal or applying filters to eliminate unwanted signals [4].

While smoothing the signals in this way may make the device slower at detecting changes in mental health because more signals of a new pattern than input signals of an old pattern must be processed, the advantage of doing so is that it does not remove any of the data. Accurately determining when a patient is under stress is the experiments' first limitation. Self-report questionnaires, which rely on a patient's capacity to evaluate their own experiences, were frequently used in studies. Due to the assessment's inherent subjectivity, the accuracy may vary depending on the participants. Some studies employed physical sampling techniques like salivary cortisol measurements, which are much less subjective but much more expensive and challenging to apply as a measurement tool in daily life because they need specialised scientific equipment. Other studies simply compared the PPG signal to that of another

sensor to determine accuracy, depending on the health parameter being measured by PPG. Although this formally assesses the signal's precision or its capacity to extract a particular health parameter [5].

CONCLUSION

Studies on the use of wearable PPG sensors for mental health monitoring are analysed in this scoping review. The majority of the studies concentrated on stress detection. Similar experimental techniques were used in these studies, but the designs and varieties of PPG wearables that were employed varied greatly. Conclusions about the most accurate device could not be made because of the use of different participant sample sizes, the absence of ground truth or the use of subjective ground truth, and the different methodologies and classifications. However, each study was able to identify some type of stress, proving that PPG is effective at identifying stress.

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