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Summary of psychometric properties of the French version of the questionnaire mental health profile of etindele (MHPE)

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Abstract

Objectives: Major brain disorders as well as central nervous or cognitive failure, have common signs they share each other. It is remains important to evaluate precisely without or before invasive investigations, which profile the disease hides behind the symptoms in front. An unique neuropsychological tool to estimate the majority of these symptoms should be developed to help clinician and practitioners, to quickly evaluate their patients.

Methods: The questionnaire Mental Health Profile of Etindele (MHPE) was developed and tested around three different sites. Cronbach alpha, ICC and reliability of the MHPE was assessed with descriptive and multivariable statistical analysis. MHPE was correlated with current validated scale used currently in practice.

Results: The questionnaire Mental Health Profile of Etindele (MHPE) computed and grouped most of these signs and symptoms, and sort out the more precise and useful scale in mental health field. Socioeconomic profile, general state, drug utilization combined with cognitive failure, gender, education, family medical history, memory and cognitive impairments, sleep disorders, suicidal behaviour and tendencies, as well as physical activity data were collected and computed in one scale.

Conclusion: MHPE is precise, trustable and applicable in many contexts in research or clinical investigation. MHPE was tested in project related to psychology, neuroscience, epidemiology and family medicine; and demonstrated similar properties.

Advances in the knowledge

- The Mental Health Profile of Etindele allows both evaluator (researcher, clinician, healthcare practitioner) and patient.
- The questionnaire allows the collection of sociodemographic information, and categorized in the same time well-being, depression, cognitive impairment, anxiety, sleep disorders, medication and family history.
- It is simply to use and may speed the diagnosis of a plenty of mental disorders.

Application to patient care

- The Mental Health Profile of Etindele can be applied directly by the professional and the caregiver, and can be also be self-filled by the patient or the participant in a research protocol.
- The MHPE can be easily share online to a distant population, as well as a large sample. Analysis of the responses can be computed accurately and quickly, allowing rapid epidemiological research and short communication.
- This questionnaire also facilitates prevention and surveillance of population.

Introduction

Major brain disorders as well as central nervous or cognitive failure, have common signs they share each other [1-3]. It is remains important to evaluate precisely without or before invasive investigations, which profile the disease hides behind the symptoms in front. Monitoring the mental state increased quality and accuracy of prevention. It will also help to control early steps of cognitive impairments and control the onset of brain disorders. Early detection of cognitive impairment can improve handling of dementia and associated illness. There are a lot of survey and questionnaire able to test the same clinical parameters. The point is, it is necessary to often use more than two questionnaires in the same interview, to collect data or information from the same participant. The necessity to have one questionnaire to collect majority of data related to a specific question is urgent. To address this concern, at the University of Montreal, a single questionnaire was designed two years ago, for a mental health research. Many versions of this tool were revised. In many studies, a new version of this questionnaire was updated and employed. The final version of this questionnaire has been tested to sort out his psychometric parameters. It aimed to be more accurate and easy to used, because it includes majority of common signs and associated symptoms related to mental health concerns. The questionnaire Mental Health Profile of Etindele (MHPE) computed and grouped most of these signs and symptoms, and sort out the

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more precise and useful scale in mental health field. Socioeconomic and risk factors data, general state and lifestyle, medication associated with cognitive disorders, sex, education, family history, memory skills and mental disorders, sleep and suicidal behaviour, as well as physical activity data were collected and computed in one scale. Many studies were leads to validate his psychometric properties [4-12]. MHPE is precise, trustable and applicable in many contexts in research or clinical investigation.

Materials and methods

The usage of MHPE was made during a research project approved by the committee of ethics and research. This committee is under authority of the Faculty of Arts and Science, both at the University of Montreal, Canada. Our participants signed a consenting form (paper or electronic). This process was the same in all sites it was used. Sociodemographic and clinical raw data of age, drugs associated with suicidal behaviours, gender, education, family history disorders, memory deficiency and cognitive complaints, sleep disorders, physical activity, well-being and depression; were computed with the Mental Health Profile of Etindele (MHPE) questionnaire. This scale was used with different population aged from 18 to 40 years old in previous published studies. In all these studies, historical timeline of medications (for the subject and his family) was composed by data about drug usage, therapies related to musculoskeletal diseases, neurological disorders, respiratory and cardiovascular functions. Other medications were categorized into anxiolytics, antibiotics, energy drinks, hypnosis, sleep quality and sleep duration pills, and anti-inflammatory. A little sample of these participants (around 50 participants) was interviewed before the study, to know what is their preferred mode of investigation: online or face to face. More than 90% of the sample expressed a preference for online study, because they can reply everywhere and anytime when they are free. The MHPE online version was then designed in collaboration with member of Ethic committee of Arts and Science Faculty. It was tested many different version and the final version was, the more optimized version of the questionnaire. The online version of the MHPE was builder to be compatible with IOS, Windows, smartphone and tablets. It is also compatible with Firefox, Windows, Ubuntu, Internet Explorer and Google Chrome. All responders were anonymous; every information was secured and computed in a google sheet. The google sheet didn't have any ID, IP address, any information of the subject (name, age, postal code, gender, etc.…). Only the main investigator has access to this sheet and raw data. The same questionnaire was sent online 2 months before, and presented to participants in a printed version later. This process allowed us to collect a maximum of responses and to test the liability of the responder and the fidelity of the questionnaire. The data were collected during 1 year with this procedure, and computation started when an acceptable number of participants was reached. Bias like incomplete forms, similar information, responses received after the beginning of computation; were removed from the final sample for analysis.

Results

MHPE only have a French version with corresponding meanings table in English. For this reason, participants aged more than 40 years old, enabled to complete experiments and speaking other languages than English and French were not computed during analysis. Almost 3,000 subjects distributed in three networks of patients in North America, Europe and Japan, contributed to the testing and the validation of this questionnaire. Data collection completed over a twelve months period and compilated in four different documents programmed to not have contains such as email, name, IP address or any information leaded us to the responders, so totally anonymous and secured. Descriptive and multivariable statistical analysis were performed to describe all closed-ended items in the questionnaire, and to sort out our results. All open-ended answers were encoded using an interpretive-descriptive investigation.

Data analysis was performed with SPSS Statistical software (version 23 for windows 10, 64 bits, IBM Corporation, Armonk, NY, USA), and R software. we used a percentile distribution of scores to evaluate scale for cognitive complains and sleep disorders. The relationships between socio-demographics raw data, intensity of depression, items related to duration and quality of sleep as well as cognitive decline; were tested with the U-Mann Whitney. The correlation between each variable and the four dimensions of shorter version of McNair were explored with Pearson chi-square.

After computation of results, MHPE was compared with questionnaires and scales testing the same parameters such as Hospital Anxiety and Depression Scale, McNair Scale and Columbia Suicide Severity Rating. An ICC (Intraclass Correlation Coefficient) value of 0.70 and over, was accepted as an indicator of a high correlation. Internal consistency and test-retest analyses were executed to assess the reliability of the MHPE score. Cronbach alpha was considered very good for a value above 0.80. ICC (95% confidence interval) was employed to evaluate test-retest value. Cronbach alpha was employed to measure the internal consistency measure. Construct validity of the Mental Health Profile of Etindele was tested by factor analysis. Convergent validity of the MHPE was calculated, to use the Pearson correlation coefficient method after overall score obtained from McNair test, Hopital Anxiety and Depression Scale (HADS), and Columbia Suicide Severity Rating (C-SSRS). Regarding Pearson correlation coefficient, 0.87 to 1.00, 0.81 to 1.00, 0.41 to 0.60, 0.21 to 0.40, and 0.10 to 0.20 were finally quoted: excellent, very good, good, poor, and no correlation.

Discussion

Accuracy and utility of Mental Health Profile of Etindele should be test in different language than French and English. The global score and categories will be upgrade to include other lifestyle factors like obesity and hypertension, which can clearly impact the balance of the central nervous system, and influence the issue of neurodegenerative disease [13-15]. The translation and validity of the MHPE is one of several projects running currently. The current form of the questionnaire included 10 categories and a total of 72 questions. A shorter version should be released soon, to allow a better usage of this questionnaire. The questionnaire can be use during the interview between investigator and patients. It can also be use online as a survey, and then reach a consistent data base.

Identification of early signs of clinical parameters of mental diseases whatever the methodology, before invasive investigations, may reduces significantly onset of prevalence [16-22]. An environmental factor of depression, stress or anxiety, can be easily prevents with a regular self report of information by participant himself or professional healthcare. Impairments when associate with certain lifestyle environment for young adults, open a wide range of hypothesis on how cognitive impairments rise silently, or how physical activity can affect personal well-being. This study also wants to be a warning signal on the low attention given to monitoring mental health of participants after 18 yeas old. This questionnaire can be use online and in front, and data can be easily compute because they are stored live in a secure google sheet or other online storage position which can compute online basic descriptive statistics. The performance of the MHPE will be

more investigate in the next years with bigger cohort and different population, to update his detection skill and sensibility, as well as his usage by the entire scientific community.

Conclusion

The Mental Health profile of Etindele questionnaire offered a new tool for detection for mental disorders and neurodegenerative disease. It can be use online, in interview, by phone, by the participant himself or the therapist. The previous studies demonstrated MHPE allows to collect data on major disorders of the central nervous system like depression, anxiety, sleep disorders, physical activity, well-being, sociodemographic profile and cognitive disorders of the same subject. A wide use of this questionnaire should be made with English version and Spanish version available soon.

Conflict of interests

Authors mentioned above, have no conflicts of interests, financial or otherwise with the present study.

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