

Original article

## Typological and factor analysis of the perceived stress measure by using the PSS scale

### Analyse typologique et factorielle du stress perçu mesuré à l'aide de l'échelle PSS

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#### Abstract

The aim of this research was to explore the structure of the Perceived Stress Scale (PSS) by using data analysis in order to question its theoretical and methodological bases in a critical and positive way. Unidimensional analyses and two-dimensional analyses of the scale were carried out on a sample of 600 individuals. The typological analysis of the data subsequently made it possible to cross these two analyses and revealed that the individuals who have average stress (45% of the sample) according to the traditional measure of the PSS, had very diversified profiles according to the two-dimensional analysis. Some of these profiles are not in accordance with the basic model of a discrepancy between perceived control and perceived distress. In light of the results obtained, this precise typology could be useful in the field for carrying out audits and surveys while offering new elements of observation likely to improve psychosocial interventions.

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#### Résumé

L'objectif de cette recherche était d'explorer, à l'aide de l'analyse des données, la structure de la Perceived Stress Scale (PSS) en vue de questionner de manière critique et positive ces fondements théoriques et méthodologiques. Des analyses uni- et bidimensionnelles de l'échelle ont été effectuées sur un échantillon de 600 personnes. Dans un second temps, l'analyse typologique des données a permis de croiser ces deux analyses et a révélé que les individus ayant un stress moyen (45 % des répondants) selon la mesure classique de la PSS avaient des profils très diversifiés. Certains de ces profils peuvent être identifiés comme non conformes au modèle de base du déséquilibre entre contrôle perçu et détresse perçue. Au regard des résultats obtenus, cette typologie fine pourrait se révéler utile sur le terrain des pratiques d'audit et d'enquête en apportant de nouveaux éléments d'observation susceptibles d'améliorer les interventions psychosociales.

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*Keywords:* Stress measure; Perceived stress scale; Data analysis; Appraisal process

*Mots clés :* Mesure du stress ; Perceived stress scale ; Analyse des données ; Double évaluation

#### 1. Introduction

In 1995, Cohen, Kessler and Underwood-Gordon proposed a synthesis of conceptualization and the stress measure, as this

term had become overused and confusing in its meaning and in its measure. However, the authors note that a consensus seems to emerge to define stress as a process, which is produced in the case of a discrepancy between the demands of the environment and the organism's capacity to respond (Lazarus, 1966; Lazarus and Launier, 1978; McGrath, 1970). Bruchon-Schweitzer (2002) likewise defends the idea that the perception of stress in the individual depends on the event, which is felt as threatening, and on the resources available (individual and social) for coping. The author's approach (op. cit., 2002) is based on the transac-

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tional viewpoint of Lazarus et al. That is, the transaction between the subject and his environment is the object of an evaluation by the subject. The latter varies depending on the psychosocial impact of the event on the subject and his well-being, but also on the individual's capacity to cope with it. Lazarus and Folkman's model of double evaluation (1984) (Lazarus and Folkman, 1984) is based on this. This model is composed of a primary evaluation and a secondary evaluation.

### 1.1. Primary evaluation

According to the authors, a situation (stressing factor) provokes a stress reaction if it is evaluated as being losing, threatening or challenging. The first evaluation depends on the perceived aspects of the situation (imminence of a painful confrontation, intensity of the stimulus, possibility of controlling the stimulus, etc.) and on the psychological structure of the individual (individual's belief in himself and in his environment, aptitudes linked to his personality). At this point, we are talking about the primary evaluation.

### 1.2. Secondary evaluation

When the psychological impact of the stimulus is evaluated as motivating a coping response (in order to "cope"), the individuals evaluate their resources in order to eliminate or reduce the effects of the stressing situation: this process is called the "second evaluation". If one perceives that coping responses are available and appropriate to the situation, the threat is then short-circuited and no stress response occurs. It must be noted that it is coping "resources" and not coping "strategies" that follow both evaluations. At this level, the stress response is only essential if the evaluated resources are inappropriate or unavailable. In other words, the evaluation of coping "resources" at this stage does not necessarily involve the development of coping "strategies". It is important to note that it is a circuitous process, which involves a constant reevaluation of both the situation and the resources during the progression of the event (Lazarus, 1981). Thus, events considered at first as threatening can be reevaluated as harmless or conversely. Cohen et al. (1983) observe that the stress response does not only depend on the intensity and other aspects linked to the situation, but rather on the person and contextual factors. This approach emphasizes the individuals' perception, in other words, the individuals' interpretation of the situation and their capacities to cope with it. Hence, it is the question of "perceived stress" and the interactive approach to stress, which makes it possible to take into account the fact that the same situation can provoke very different reactions depending on the individuals. Lazarus (2000) deplors the lack of longitudinal, clinical or micro-analytical type studies, which could offer a precise view of the links between coping and stress. According to the author, the same is true in terms of adequacy between research and clinical practice concerning these subjects (stress/coping). Likewise, Cohen et al. (1983) regret, nevertheless, "the absence of an accurate psychometrical measure of perceived stress in spite of the wealth of the theoretical elements" and propose a

new global measure of perceived stress, the "Perceived Stress Scale" (PSS).

This review of the literature shows how the question of stress raises numerous scientific debates, particularly concerning its measure. Our aim, although it is modest, follows this direction. We propose a study of the underlying construct of the measure of "perceived stress" by using the PSS as a tool. Our investigations are based on "inductive research" in the sense used by Benzécri (1982). The second part of our study goes deeper into this aspect of research.

## 2. Presentation of the PSS measuring instrument

Cohen et al. (1983) regret, however, "the absence of an accurate psychometrical measure of perceived stress in spite of the wealth of the theoretical elements" and propose a new global measure of perceived stress, the "PSS".

### 2.1. Presentation of the PSS tool

The "PSS" suggested by Cohen et al. in 1983 measures the degree to which individual situations are evaluated as being stressful or more precisely, unpredictable, uncontrollable and intense (overloading in 1983, then overwhelming in 1991). Numerous authors (Averill, 1973; Cohen, 1978; Lazarus, 1966) only considered that these three aspects – unpredictability, uncontrollability and intensity – are the main components of the experience of stress. Thus, this measure is meant to be "global", in other words, not specific to the presence or to the importance of some "events in life" which are usually measured by objective-stress scales. The authors describe it as being sensitive to chronic stress stemming from a life-time of circumstances, to stress concerning expectations with regard to future events, and also to reactions to specific events included in each scale. The studies have shown that the psychometrical properties of this tool seemed satisfactory (Bruchon-Schweitzer, 2002).

The PSS 14 tool is composed of 14 items on a five-point scale (going from "never" to "often") (examples of items: "... have you ever been bothered by an unexpected event?" "... have you ever successfully coped with little problems and daily worries?"). The first study by Cohen et al. (1983) made it possible to show the reliability of the scores obtained with the PSS 14 tool as well as its links to the perception of events in life, and physical and depressive symptomatology. Cohen and Williamson (1988) then proceeded to a second examination of the tool by using it with 2387 respondents. The aim here was to test the invariance of the model a priori.

This study shows two factors, one explaining 25.9% of the variance and contributing very strongly to the negative items (being annoyed, being unable to control things, feeling nervous and stressed), while the other factor (explaining 15.7% of the variance), contributes strongly to the items describing positive states (succeeding in coping, coping with worries, feeling confident). Items 4, 5, 12 and 13 are more slightly correlated: 0.17, 0.33, 0.11, 0.39 respectively, and were deleted in the 10-item version (PSS 10). This factorial structure was confirmed by Hewitt, Flett and Mosher in 1992 who named these two factors

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