Chapter # 5

ELKINS HYPNOTIZABILITY SCALE: ADAPTATION OF THE FRENCH VERSION

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ABSTRACT
This study aims to adapt the Elkins Hypnotizability Scale (EHS, Elkins, Johnson, Johnson, & Sliwinski, 2015) to a French sample and to determine its psychometric properties. The EHS was conceived in order to assess individuals' responsiveness towards suggestions guiding hypnotic experiments, ranging from motor responses to imagery and hypnotic amnesia. We also investigated the role of social desirability, attitudes and beliefs towards hypnosis, and vividness of visual imagery on individuals' hypnotizability level. Usually, these factor effects are considered in the light of hypnotizability (see Bret, Deledalle, Capafons, & Robin, 2024; Koep, Biggs, Rhodes, & Elkins, 2020). Preliminary results revealed that the French version of EHS showed a good internal consistency. The gender effect on EHS scores was not significant. A significant, moderate and positive correlation between the EHS and the attitudes/beliefs towards hypnosis suggest that attitudes/beliefs might predict efficiently the responsiveness to hypnotic suggestions. A moderate and a positive correlation was found between the EHS and the vividness of visual images, no significant correlation was found between the social desirability and the EHS scale, confirming its relevance. These findings tend to show that the French adaptation of the EHS may be an available brief assessment of hypnotic suggestibility, useful for researchers and clinical practitioners.

Keywords: attitudes, beliefs, hypnosis, hypnotizability, suggestibility.

1. INTRODUCTION

According to Elkins et al. (2015) hypnosis is defined as "A state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion" (p. 382). The hypnotic experiment also called "hypnotic trance" comprises three ingredients: (1) absorption in the hypnotic experiment; (2) dissociation, that is, the individual focusing on its internal and subjective sensations, emotions, images and thoughts while inhibiting the external stimuli from the environment. (3) Suggestibility, reflecting the inclination to accept and execute the hypnotic suggestions (Kekecs, Nagy, & Varga, 2014; Robin, 2013). Gueguen, Barry, Hassler, and Falissard (2015) have reported proofs of the hypnosis efficiency as therapeutic for the reduction of pain, anxiety and stress in medical settings (Montgomery et al., 2007). Montgomery, Schnur, and David's meta-analysis (2011) emphasized the importance of the suggestions' contents and the hypnotic suggestibility called "hypnotizability". The therapeutic treatment's efficiency is strongly linked to the individuals' hypnotizability level (Kirsch, 1991; Lynn, Laurence, & Kirsch, 2015). Hypnotizability is defined as the inclination of individuals to respond to hypnotic suggestions and has raised important debates between the different theoretical currents of hypnosis (Barnier, Dienes, & Mitchell, 2008; for a review see Robin, 2013).

Elkins et al. (2015) defined the hypnotizability as "an individual's ability to experience suggested alterations in physiology, sensations, emotions, thoughts, or behaviour during hypnosis" (p. 383). Currently, there are more than 25 hypnotizability scales (Gay, 2007); nevertheless, none of them was translated and validated in a French version.

Usually, the most currently used scales are the Stanford Hypnotic Susceptibility Scale, Form C (Weitzenhoffer & Hilgard, 1962), and the Harvard Group Scale of Hypnotic Susceptibility, Form A (Shor & Orne, 1962). Nevertheless, more recently, the Elkins Hypnotizability Scale (EHS, Elkins et al., 2015) has been developed for wider use in assessing hypnotic suggestibility to address a lack of use of these scales in clinical and experimental settings (less than 10%). Indeed, the lack of resort to the hypnotizability scales hinges on some inconveniences, such as a too long testing time, the occurrence of controversial suggestions such as age regression or the sensitivity of the measurement. In contrast, the EHS is described as pleasant for participants (Yek & Elkins, 2021), quick to administer, providing reliable and valid results (Elkins, 2014; Elkins et al., 2015; Kekecs, Bowers, Johnson, Kendrick, & Elkins, 2016; Kekecs et al., 2021; Koep et al., 2020; Kvitchasty, Vereshchagina, Kovaleva, Elkins, & Padilla, 2022).

The EHS consists of a quick presentation of the scale, followed by a hypnotic induction of internal focus and relaxation. Then, a series of 12 hypnotic suggestions are orally presented to the participant/patient, one by one. They range from simple motor suggestions to suggestions involving a deeper state of hypnosis such as visual hallucination, and at the end, a post-hypnotic amnesia suggestion. Preliminary analyses showed that the EHS has good internal consistency (.85), test-retest reliability (.93). Moreover, convergent validity with the Stanford Hypnotic Susceptibility Scale, Form C (.82, see Elkins, 2014) was confirmed with samples of college and university students (see Kekecs et al., 2016; Kekecs et al., 2021). The analysis of the principal components revealed a four-factor structure that accounted for 65.37% of the variance. The first factor is ***direct motor levitation/imagery***; the second one is ***visual/perceptual***; the third one is ***olfactory/perceptual***; the fourth one is ***Motor Challenge*** (the presentation of this scale is more detailed in the material section, see below). Nevertheless, this factorial structure requires confirmatory analyses and subsequent cross-validation in order to be confirmed (see Elkins et al., 2015; Zimmerman, Snyder, & Elkins, 2023).

As the EHS is considered as the new gold standard for assessing hypnotizability, it is useful for French natives to have this valid and reliable scale to assess individuals' hypnotizability both in clinical and research settings. Currently, French clinicians and researchers do not have a valid tool to measure the inclination of individuals to hypnotic suggestions, which calls into question the studies based on hypnosis. Therefore, the present study aims to adapt the EHS and to test its reliability and validity for a French sample.

Moreover, it is widely admitted that the outcomes of successful treatments using hypnosis as a therapeutic adjunction are linked to positive attitudes towards hypnosis (Mendoza, Capafons, & Jensen, 2017). Negative and unrealistic beliefs may interfere with the patient's adherence to the treatment and cooperation with the practitioner. Although attitudes and beliefs have been recognized as main determinants in how patients respond to hypnosis, research on this topic is scant. Nevertheless, a few studies have demonstrated that positive attitudes/beliefs about hypnosis are associated with higher levels of hypnotic suggestibility (Lynn & Green, 2011). The Valencia Scale of Attitudes and Belief Toward Hypnosis, Client version (VSABTH-C, Capafons, Suárez-Rodríguez, Molina-del-Peral, & Mendoza, 2018) has gained interest among researchers as a predictor tool of hypnotic responses. A series of international samples and studies has confirmed a consistent and stable eight-factor structure in the USA, Romania, Portugal, Mexico, Spain and French (see Bret

et al., 2024). The VSABTH-C comprises eight factors. Each factor corresponds to the scale measures of attitudes and beliefs towards hypnosis: (1) *Fear* corresponds to the belief that hypnosis is dangerous; (2) *Memory* is the belief according to which hypnotic trance is a truth serum that allows precise memories to be recovered; (3) *Help* is the belief according to which hypnosis is an effective technique in addition to psychological and medical therapies; (4) *Control* is the belief according to which people under hypnosis remain aware of their actions and are able to resist suggestions if they wish to; (5) *Collaboration* is the belief according to which participants must cooperate closely with the hypnotist in order for the therapeutic intervention to be effective; (6) *Interest* is the belief according to which participants desire to be hypnotized and desire to be easily hypnotized; (7) *Magical* is the belief according to which hypnotic suggestions solve an individual's problems effortlessly; (8) *Marginal* is the belief according to which hypnotized people are not gullible and ignorant and that hypnosis is not a scientific approach (see Bret et al., 2024). Adequate attitudes associated with hypnosis correspond to higher scores for the factors of *help, control, collaboration*, and *interest*. Inadequate attitudes towards hypnosis correspond to higher scores on items for the *fear*, *memory*, *magical*, and *marginal* factors (see Molina-Peral, Suárez- Rodríguez, Capafons, & Mendoza, 2020). Therefore, we expected positive correlation between scores resulting from the French version of VSABTH-C (Bret et al., 2024) and the French version of the EHS. Positive attitudes/beliefs towards hypnosis might be high and positively correlated with moderate and high level of hypnotizability, and therefore with the ease with which the individuals carry out the hypnotic suggestions. This relationship is crucial to determine the effect of hypnotic therapy on the treatment.

Kirsch and Braffman (2001) considered that variations of hypnotizability level were correlated with the ability to engage in an imaginative experiment. A widely expanded idea is that high hypnotizable people have high imagery abilities. However, some authors have shown that imaging ability does not consistently correlate with hypnotic suggestibility while imagining process seems to be crucial for encoding the hypnotic suggestions (Laurence, Beaulieu-Prévost, & du Chéné, 2008; Terhune & Cardeña, 2010). Grebot and Paty (2005) found a significant relation between mental imagery and hypnotic suggestibility. Therefore, we thought useful to test correlation between hypnotizability and visual imagery abilities by using the Vividness of Visual Imagery Questionnaire (VVIQ, Marks, 1973), as this relationship has never been explored with the EHS. The VVIQ is the most common questionnaire used in order to estimate the vividness of visual images like, for instance, those spontaneously generated when we are telling a memory. Our assumption was that high and moderate levels of hypnotizability would correlate positively with vividness of visual images, suggesting that imagery abilities may be a predictor of hypnotizability.

Spanos (1991) pointed out that hypnotizability level variations hinge on their beliefs and attitudes towards hypnosis and also the individuals' compliance by giving the impression of being a "good" hypnotic participant/patient (whether it is consciously or not). Compliance to hypnotic suggestions might result from the social desirability that consists in presenting oneself in a favorable light to one's interlocutors. In this view, the responses to hypnotic suggestions would be likely governed by a personality trait, such as social desirability. Notably, it also turns out that EHS scores might be biased because some participants' responses are imbued with strong social desirability.

Taking into consideration all of the above, the present study aims to analyze: (1) the internal consistency of EHS in a French version; (2) the variation across beliefs/attitudes towards hypnosis, visual imagery abilities, and social desirability since no study has presented these comparisons so far, which would contribute to the knowledge of factors that modulate responses to hypnotic suggestibility. The effects of these factors

(beliefs/attitudes towards hypnosis, vividness of visual imagery, social desirability) are usually considered in the light of hypnotizability, i.e., the ease with which the individual behaves towards a hypnotic suggestion, such as hand levitation. Nevertheless, the relationship between these factors and Elkins hypnotizability scale has not been studied yet. It therefore seemed useful to examine these personality factors independently of each other. Therefore, the study's second purpose was to contribute to a better knowledge of determinants in the hypnotic responses.

2. METHOD

2.1. Participants

Forty-two volunteers, aged from 18 to 45 years old (M = 26.70; SD = 6.21), were recruited on social networks. They were native French speakers and they never had previous experience with hypnosis. Women (n =22; M = 25.00; SD = 4.95); men (n = 20; M = 28.60; SD = 6.98). Participants filled a free and informed consent form for participation in the study.

2.2. Measures

Two scales and two questionnaires were presented to the participants.

The French version of the Elkins Hypnotizability Scale (EHS, Elkins et al., 2015) was used to measure hypnosis suggestibility. First, the EHS was translated into French by one of the authors, specialist in hypnosis, with a PhD in psychology, and who is a native French speaker with a good level of English language. Then, the French version of the EHS was validated by the English translators' office of Nantes University. As in the original English version, the French version of EHS began with a short introduction followed with a classical hypnotic induction of attentional absorption and relaxation, then followed by a series of 12 hypnotic suggestions guiding hypnotic experiments. Suggestions were ranging from motor responses (5 suggestions) to imagery (6 suggestions) and hypnotic amnesia (1 suggestion). Suggestions were administered in tune with the complexity of the hypnotic procedure. Responses to each suggestion were scored from 0 to 12, according to the extent of response the participant gave to the hypnotic suggestion, indicating the participant's level of hypnotic responsiveness. The scale takes approximatively 30 minutes to administer.

The Valencia Scale of Attitudes and Beliefs Toward Hypnosis - Client Version (VSABTH-C, Capafons, Cabañas, Espejo, & Cardeña, 2004; 2018; Bret et al., 2024) was adapted and validated in a French version of a 37-item self-report measurement. Each item is measured on a 6-point scale ranging from: 1 (completely disagree) to 6 (completely agree). The model obtained with the online French version provides a satisfactory fit to all the participants' data in comparison with other previous studies and confirms validity, reliability and invariance across time and gender.

The Vividness of Visual Imagery Questionnaire (VVIQ, Marks, 1973) adapted in the French version has 16 items administered twice, the first time with eyes open, the second time with eyes closed. Each item refers to a situation for which the participant has to estimate the vividness of a visual image. High scores reflect high vividness of images on the rating scale with 1-point for "no image at all, you only know that you are thinking of the object" and 5-points for "perfectly clear and vivid like a normal vision". The French version has not been validated yet (see Santarpia et al., 2008).

The Social Desirability (DS 36) scale is assessed on two dimensions: self-illusion and impression management (Tournois et al., 2000). Self-illusion (also called self-deception) refers to conscious or automatic positive self-esteem. Impression management (or hetero-deception) is a deliberate strategy used to give others a favorable self-image. Social

desirability is defined as the tendency to distort self-descriptions in order to show oneself in a favorable light, i.e., a tendency to give an exaggerated self-profile. The DS36 comprises 36 assertions with 18 items assessing self-illusion (*I am always optimistic*) (α = 0.86) and 18 items assessing impression management (*I am always polite*) (α = 0.82). The low correlation between the two factors (α = .24) testifies to their quasi-independence.

2.3. Procedure

Participants filled the informed consent, then they answered to the demographic questionnaire and to a few questions about their knowledge and potential experience of hypnosis. Thereafter, each participant was individually administered the EHS or the VSABTH-C in a counterbalanced order. The EHS was administered individually by research assistants specifically trained in hypnotic induction and psychological assessment procedures. After performing both scales, they filled the DS36 and then the VVIQ questionnaires. All participants were debriefed after the experiment. The experimentation took approximatively one hour and half for each participant. The ethical principles of the Declaration of Helsinki were respected throughout the research process.

3. RESULTS

3.1. Reliability Analyses

Cronbach's alpha was used to measure the reliability of the French version of the EHS. Descriptive analysis was conducted on each item of the EHS. Means, standard deviations and percentage of pass are displayed in Table 1. The average EHS score for females and males were respectively, M = 5.41 (SD = 3.03); M = 5.20 (SD = 3.07). There was no significant difference between females and males, $t(40) = 0.222$, $p = .826$. Overall, Cronbach's alpha indicated a good reliability between items (α = .826). Table 2 shows the inter-item correlations of the EHS. Most of the EHS items correlated significantly. Nevertheless, correlation is almost non-existent for EHS 12 (posthypnotic amnesia), achieved by only 2.38% of the participants. Three other suggestions were accomplished by a small rate of participants (less than 40%): the EHS 5 (elbow lift), EHS 9 (distinct rose smell), and EHS 10 (vague visual hallucination). These hypnotic suggestions had also the lowest scores in the Elkins' study (whose rates were higher than our study rates)**.** However, Elkins' study comprised a larger sample than ours (N = 252, see Elkins et al., 2015).

Table 1.
Mean scores and Standard Deviations for each EHS item.

	Female		*Male*		*Total*
Item	*M*	*SD*	*M*	*SD*	*% Pass*
EHS 1	*0.75*	*0.44*	*0.95*	*0.21*	*0.86*
EHS 2	*0.50*	*0.51*	*0.54*	*0.51*	*0.52*
EHS 3	*0.65*	*0.48*	*0.63*	*0.49*	*0.64*
EHS 4	*0.45*	*0.51*	*0.36*	*0.49*	*0.40*
EHS 5	*0.10*	*0.30*	*0.22*	*0.42*	*0.17*
EHS 6	*0.85*	*0.36*	*0.90*	*0.29*	*0.88*
EHS 7	*0.50*	*0.51*	*0.45*	*0.51*	*0.48*
EHS 8	*0.45*	*0.51*	*0.36*	*0.49*	*0.40*
EHS 9	*0.20*	*0.41*	*0.13*	*0.35*	*0.17*
EHS 10	*0.20*	*0.41*	*0.22*	*0.42*	*0.21*
EHS 11	*0.50*	*0.51*	*0.59*	*0.50*	*0.55*
EHS 12	*0.05*	*0.22*	*0.00*	*0.00*	*0.02*
Total	*5.20*	*3.07*	*5.41*	*3.03*	*0.53*

Table 2.
Correlation matrix between 12 items of EHS.

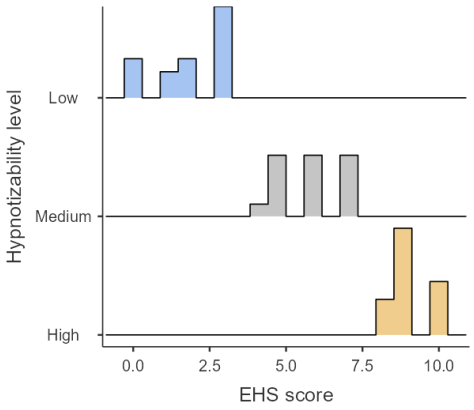
	EHS 1	*EHS 2*	*EHS 3*	*EHS 4*	*EHS 5*	*EHS 6*	*EHS 7*	*EHS 8*	*EHS 9*	*EHS 10*	*EHS 11*
EHS 2	*0.428***	—									
EHS 3	*0.548****	*0.483***	—								
EHS 4	*0.337**	*0.592****	*0.615****	—							
EHS 5	*0.183*	*0.298*	*0.333**	*0.542****	—						
EHS 6	*0.480***	*0.386**	*0.340**	*0.303*	*0.164*	—					
EHS 7	*0.389**	*0.432***	*0.412***	*0.379**	*0.085*	*0.350**					
EHS 8	*0.198*	*0.301*	*0.412***	*0.506****	*0.282*	*0.303*	*0.185*				
EHS 9	*0.183*	*0.043*	*0.333**	*0.152*	*0.143*	*0.164*	*0.341**	*0.542****	—		
EHS 10	*0.213*	*0.382**	*0.389**	*0.397***	*0.389**	*0.192*	*0.083*	*0.397***	*0.234*	—	
EHS 11	*0.176*	*0.379**	*0.221*	*0.165*	*0.021*	*0.257*	*0.196*	*0.360**	*0.021*	*0.358**	—
EHS 12	*0.064*	*0.149*	*0.116*	*0.189*	*-0.070*	*0.057*	*0.164*	*0.189*	*-0.070*	*-0.082*	*0.142*

*Note. * p < .05, ** p < .01, *** p < .001*

3.2. Comparisons between VSABTH-C and EHS Scores

The major result highlights moderate and positive Spearman correlation between the total EHS scores and the total VSABTH-C scores (r = .445, 95%CI[.670 ; .182], p = .003), especially scores for positive attitude/belief towards hypnosis (r = .483, 95%CI [.680 ; .199], p = .001); correlations were significant for two positive dimensions: Interest (r = .427, 95%CI[.663 ; .169], p = .005) and Control (r = .481, 95%CI[.681 ; .201], p = .001). Correlations for the six other dimensions were not significant. Three sub-groups of participants were formed according to their low, medium and high mean scores on EHS (see Figure 1): (1) the participants with a low level of hypnotizability (n = 15; M = 1.93; SD = 1.22) having obtained a score between 0 and 3 inclusive; (2) the participants moderately hypnotizable (n = 16; M = 5.88; SD = 0.96) having obtained a score between 4 and 7 inclusive; (3) the participants highly hypnotizable (n = 11; M = 9.09; SD = 0.70) having obtained a score between 8 and 12 inclusive.

Figure 1.
Distribution of EHS scores for each level of hypnotizability (low, medium, high).



The repeated measures ANOVA revealed a significant interaction effect between Attitudes towards hypnosis x EHS levels, F (2, 39) = 3.53, p = .039, n^2_p = .153. The *post-hoc Bonferroni* comparisons confirmed no difference between the three levels of hypnotizability as regards negative attitudes towards hypnosis. In contrast, whereas participants with low and medium level of hypnotizability were not influenced by the attitudes towards hypnosis, it appeared that individuals with high level of hypnotizability have more positive attitudes towards hypnosis than ones with low level (t(39) = 4.248, p = .002). These results point out to the fact that the level of hypnotic suggestibility may be affected by positive attitudes and beliefs towards hypnosis.

The order of administration of both scales (EHS vs. VSABTH-C) was examined in order to evidence a likely effect of experiencing hypnosis during the hypnotizability measurement on the VSABTH-C scores. The Mann-Whitney test revealed that participants who experienced hypnosis first showed higher scores for two positive factors of VSABTH-C: “help” (U (40) = 139, p = .02, rb = .37) and “control” (U (40) = 154.50, p = .05, rb = .30). On the contrary, participants who completed the VSABTH-C before experiencing hypnotic suggestions showed higher scores for one negative dimension of the VSABTH-C: “fear” (U (40) = 139, p = .02, rb = .37). These results confirm the relationships between beliefs about hypnosis and hypnotic suggestibility.

3.3. Comparison between VVIQ and EHS Scores

Spearman correlation test revealed positive and moderate correlation between the EHS and VVIQ scale on total scores (r (40) = .403, 95%CI[.677 ; .193], p = .008). This result might suggest that vivid visual images are involved in the processing of hypnotic suggestions. Nevertheless, vividness of visual images is not a likely predictor of hypnotizability level. Indeed, we did not find differences between VVIQ scores and the levels of hypnotizability (low, medium and high). This result should be considered with caution, VVIQ not being a validated test.

3.4. Comparison between DS36 and EHS Scores

Spearman correlation test did not show significant correlation between DS36 scores and the hetero-deception and the self-illusion sub-scales, respectively (r = .121, p = .444; r = .184, p = .244), confirming the relevance of the EHS scale whose hypnotic behaviors were not biased by a personality trait like social desirability.

4. DISCUSSION AND CONCLUSION

As many researchers and practitioners have underlined, before using hypnosis as a therapeutic intervention, it is important to know patients' hypnotic suggestibility, which might influence treatment outcomes, with high or moderate hypnotizability linked to positive outcomes (Bret et al., 2024). Moreover, positive beliefs/attitudes might reinforce hypnotic suggestibility and therapeutic collaboration. Negative and unrealistic beliefs can interfere with cooperation with the hypnotist and adherence to treatment (Capafons et al., 2004; Capafons et al., 2018).

The internal consistency of EHS for the first time in a French version matches with the analyses carried out in previous studies (Elkins, 2014; Elkins et al., 2015; Kekecs et al., 2016; 2021; Koep et al., 2020; Kvitchasty et al., 2022). EHS items showed significant and high correlation value excepted for three items, especially EHS 12 which should be excluded from this scale. Gender-related variations, as in most previous studies, demonstrated invariance. Most of the studies using hypnotizability scales did not find correlation between hypnotic suggestion responsiveness and personality dimensions (Green, 2004; Zhang et al., 2017). The present findings revealed that personality dimension such as social desirability was not associated with the level of hypnotizability, testifying the EHS French version's validity and applicability. Many studies have observed a significant and positive relationship between imagining abilities and hypnotic suggestibility (Glisky & Kihlstrom, 1993; Grebot & Paty, 2005). Our findings support these predictions: while correlations remain moderate in size, they likely support the hypothesis about the relevance of the vivid visual images as an essential cognitive process in the processing of hypnotic suggestions. Nevertheless, our study cannot state that vividness of visual images is a predictor about hypnotizability and a fortiori the positive outcomes of hypnotherapy.

Overall, our results support our predictions regarding the relationship between hypnotizability level and attitudes/beliefs towards hypnosis. The results indicated that participants with positive beliefs towards hypnosis are also more prone to accomplish hypnotic suggestions and hence to reach a high level of hypnotizability. This finding is in line with the response expectancy theory, based on the assumption that the ease with which individuals respond to hypnotic suggestions hinge on expectations of particular behaviors in hypnosis (Kirsch & Lynn, 1998; Lynn & Kirsch, 2006). In return, the success of the hypnotic suggestions reinforce beliefs and motivation to respond in conformity with expectancies.

According Lynn and Kirsch (2006), reinforcing people's positive expectations of hypnosis can only maximize the benefits of treatment. Patients' beliefs affect their responses to hypnotic suggestions. Indeed, findings showed that participants who had experienced hypnosis before answering the VSABTH-C tend to affirm positive belief and attitudes towards hypnosis like "fear". In contrast, people who answered to VSABTH-C before experiencing hypnosis (with no past experiment of hypnosis) had negative belief and attitudes towards hypnosis. These results (even if they are collected with a small sample) confirm the need to take into account the beliefs of participants/patients regarding hypnosis in order to strengthen their involvement in the hypnotic experience, particularly with a view to promoting treatment.

These preliminary data showed that the French adaptation of the EHS is an available brief assessment of hypnotic suggestibility, useful for researchers and clinical practitioners. Current measures were collected among a sample of healthy adults and tend to confirm Elkins et al. (2015) findings collected with outpatient clinical settings. Nevertheless, this study deserves to be pursued, in order notably to explore the factorial structure of the EHS (Zimmerman et al., 2023) with a larger sample size in order to confirm the validity and reliability of the French EHS adaptation. Some authors considered that the power analysis for CFA is based on a minimum threshold for sample size (for example, N= 100 or N = 200, Kline, 2015), taking into account the complexity of the model by proposing a ratio of number of participants per parameter (Bentler & Chou, 1987). Considering this heuristic, the EHS including 12 items, we expect a sample size comprise between 120 and 240 participants for our further study.

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