

## **Treatment by repeating phrases of positive thoughts (TRPPT): A new effective treatment tool against psychological troubles (PSYT) (Depression, anxiety, stress, low self-esteem and dissatisfaction in life) in multiple sclerosis patients and students, a controlled and randomized pilot study in Syria.**

**Muaweah Ahmad Alsaleh<sup>1,3</sup>, Amani Kubitary<sup>2</sup>**

<sup>1</sup>Center for Research on Risks and Vulnerabilities at the University of Caen Normandy and CHU de Caen, France.

<sup>2</sup>PhD student-Laboratory of Mental Health, Faculty of Education, University of Damascus, Syrian Arab Republic.

<sup>3</sup>University of Aleppo, Syria

### **Abstract**

**Introduction:** Psychological troubles (PSYT) are common co-morbidities symptoms in multiple sclerosis (MS). Negative verbal thinking style plays a causal role in maintaining intrusions, perhaps serving to trigger subsequent depressive and anxious symptoms and psychological distress. Positive verbal thinking style plays protective role against these symptoms.

**Objective:** The objective of this study was the first to evaluate the short-term effects of the TRPPT method (Treatment by Repeating Phrases of Positive Thoughts).

**Method:** The total of (27) participants, 20 students from the University of Damascus and 7 MS patients from Damascus Hospital and Ibn Alnafees Hospital.

**Results:** Experimental group who has benefited from RPPT have had less depression, less anxiety and less stress and there were significant differences between experimental and control groups. According to value of effect size (Cohen's d), NAT (1.595; 1.822), depression (1.446; 2.615), anxiety (1.492; 2.286), stress (1.395; 2.363) decrease after TRPPT; and PAT (1.643; 2.162) self-esteem (2.204; 1.676) and satisfaction in life (1.432; 1.781) improve among MS patients and students after TRPPT, respectively. The results showed a significant reduction in psychological disturbances throughout the experimental group ( $p < 0.05$ ) and a significant reduction in stress following the RPPT protocol ( $p < 0.01$ ), less anxiety ( $p < 0.001$ ) and also less depression ( $p < 0.05$ ). The short-term effect RPPT (repeating phrases positive thoughts) is significant. A low score of psychological disorders have emerged as one independent variable predictive of a good response to treatment by RPPT method.

**Conclusion:** The positive cognitions improve the treatment of depression, anxiety and stress in clinical sample (MS patients) and non-clinical one (students) and it also enhance their self-esteem and their quality of life. Unlike medicinal treatments, there is no consumption limit or adverse side effects. TRPPT is new psychotherapeutic approach against psychological disorders.

Contrary to NAT, increased PAT predicted decreased psychopathy. So, the optimal state of mind based on TRPPT is characterized by the optimal balance between cognitive and affective structure, corresponding to an adaptive and flexible balance in healthy persons in neutral situations. This theoretically optimal state of mind is positively balanced, but at the same time includes sufficient negative cognition to remain realistically cautious.

**Keywords:** Repeating phrases of positive thoughts (RPPT), Cognitions, Positive thoughts, Treatment, Depression, Anxiety, Stress, Low self-esteem, Dissatisfaction in life, Syria.

*Accepted October 10, 2016*

## **Introduction**

Syria is currently in the midst of a crisis level complex emergency, which started in 2011. A United Nations (UN) and Government of Syria joint assessment mission, highlighted mental health and psychosocial support (MHPSS) as one of the most urgent concerns resulting from the crisis [1]. According to McKenzie, Spiegel, Khalifa, Mateen, the burden of neuropsychiatric disorders in refugees is likely high as multiple sclerosis patients and students...[2] Syrian refugees face depression, mental illness among series of trauma [3].

Depression is the commonest psychiatric manifestation of multiple sclerosis (MS) [4,5] and students [6-8], but remains underdiagnosed and undertreated [8].

More than half of the number of patients with MS has depression [4,5]. Depression is associated with an increasing rate of negative outcomes [10].

Depression is frequently in MS and in students and one of the main determinants of quality of life, impaired cognitive function, lead to suicidal intent, and suicide itself. Depression impairs relationships and reduces compliance with disease modifying treatments. Depression is often treatable but it is often overlooked in a busy neurological clinic and if detected, more often than not, inadequately treated [7,8]. All students are under psychological pressure [9]. The treating depression helps to improve the results of treatment effectiveness of the co-occurrence of disease [10].

The cognitions minimize the diagnostic false of depression [10] and treat the depression [8]. Negative and positive cognitions and their ratio, all seem to be related to the level of mental health. However, positive thoughts are related to lower levels of anxiety and depression. Future research should clarify which is most effective in improving mental health: restructuring negative thoughts, enhancing positive thoughts, or restricting negative thoughts and enhancing positive thoughts among nonclinical samples (e.g. students and adults) [9,13].

With the increasing number of people suffering from psychological distress and various mental health problems, an effective treatment should be used as a useful tool for reduce the psychological troubles (PSYT) [8].

In this sense, the RPPT (Repeating Phrases of Positive Thoughts), with its satisfactory reliability, is an easy-to-use tool that can be applied in both research and clinical settings. Furthermore, the RPPT could be a useful supplement to current mental health measures, especially for treatment of depression, stress and anxiety [8].

Alsaleh [8] define Repeating Phrases of Positive Thoughts (RPPT) as the ability to build discourse and dialogical self-referrals that refer mostly to internal reviews and internal dialogues by which the individual, "has its own audience" it speaks aloud or in silence ("My positive attitude will be beneficial to my health and my day") and to restructure and permanently, by using of positive thoughts.

## **Positive Thinking and Physical Health**

Positive thoughts prolong the lives of people at least 10 years. Positive thinking impact on the mortality (longevity), the morbidity (illness onset), the symptoms and the pain. Positive thinking promotes good health and resulted in fewer illness related physician visits over the following months. Positive thinking has a positive impact on rheumatoid arthritis patients. People who used positive thinking have higher level of NK (natural killer) cell activity, elicit immune activity and had an immune system that was better prepared to engulf and destroy cancer cells. The health benefits of positive thinking extend to health problems such as Immune Functioning, enhanced immune function, natural killer (NK) activity, common cold and allergic reactions. Positive thinking is a routine coping device and facing the stress of relocation among older adult [14]. Positive thinking had a positive impact on psychosomatic illnesses [15] such as fibromyalgia, functional bowel disorders and tension headaches, chronic back pain; about the chronic disease such as Parkinson's disease and brings well-being in these patients [16]; on cardiovascular health, cancer and other diseases [14].

## **Positive Thinking and Psychological Health**

Positive thinking elicits positive emotions, creates a supportive social network, and improves coping process. Positive thinking had a positive impact on a stressful situation, enables the person cope better, increases the likelihood of a good outcome and sense of control in certain situations, and reduces the incidence of depression [14]. Positive thinking has been found to play a pivotal role in psychopathological states such as depression, anxiety [9,13,17] and stress [8,14,17]; and related with distress reduction and predicting healthy outcomes [14]. Positive thinking reduces depression, anxiety and stress [8]. Positive thinking is associated with optimism, hope, joy, self-esteem satisfaction with life and well-being [8,9,13,14,17].

Historically, psychologists have been solely focused on negative mental states leading to pathology and disorder. The influence of positive thinking on life satisfaction, quality of life and health outcomes was generally neglected [8,13,14].

## **Methods**

### **Objective**

The objective of this study was to explore the short-term effects of the treatment program (RPPT: Repeating Phrases of Positive Thoughts). The main hypothesis was to obtain a significant improvement in symptoms of depression after treatment, and possibly other dimensions of psychological functioning as anxiety and stress.

### **Sample and Participants**

In this cross-sectional study, the final sample consisted of (27) participants; 7 patients MS (3 men and 4 women)

from Damascus Hospital and Ibn Alnafees Hospital, aged 20 to 35 years and 20 students (20 women) from the University of Damascus, aged 19 to 27 years. Participation was voluntary and responses were anonymous.

After randomization randomly, experimental group was compared to a control group. The experimental group consists of 7 MS patients aged 20 to 35 and 10 women aged 19 to 24 years. For 10 women, the average age was 21.3 years ( $SD \pm 1.33$ ). For 7 MS patients, the average age was 26.6 years ( $SD \pm 6.18$ ). The control group consists of 10 participants aged 19 to 27. The average age was of 22.20 years ( $SD \pm 2.65$ ). The treatment took place over 7 days, based on RPPT exercises. Before the first SMS, the students and MS patients have received education in the RPPT in 15 minutes, led by a psychologist, with an explanation on the progress of research and measurement tools.

**Sample statistical power:** Since the sex ratio is unbalanced (27 participants: 24 women and 3 men), a statistical power calculation is a minimum precaution in order to exactly know the risks taken in the calculations related to sex for a sample as little homogeneous. Regarding the sample size, the larger the sample, the better the power [18,19].

**Power for a comparison test of two paired samples:** As the sex ratio is unbalanced (27 participants: 24 women and 3 men aged 19 to 35 years), the power for a comparison test of two paired series was calculated. The power of the Wilcoxon test (27 participants) was 0.979 for a stronger effect (0.80) with  $p=0.05$ . Power is 0.963 for the 24 women and 0.135 for men 3 (strong effect, 0.80 and  $p=0.05$ ). Power is 0.872 for the experimental group of 17 participants and 0.616 for the 10 students of control group (strong effect, 0.80 and  $p=0.05$ ).

So while the sex ratio is unbalanced, the statistical power is high enough, which allows us to affirm that our test results are sufficiently reliable.

### **Ethical Review**

This study received approval from the neurology service, Damascus Hospital and Ibn Alnafees Hospital. The Ethics and Research Committee of the Damascus Hospitals Complex approved the study protocol, informed consents were obtained from the participants after the aims and objectives of the study had been explained. All participants gave the informed consent prior being included into the study.

### **Assessment of Clinical Symptoms and Automatic Thoughts**

All participants completed an assessment and clinical evaluation that utilized the following structured interview and questionnaires.

#### **Automatic Thoughts Questionnaire - Arabic (ATQ-18-Ar)**

The ATQ [20,21] measures the frequency of cognitive self-statements associated with depressed mood. The

Syrian version of the ATQ-18-Ar includes 8 items on negative automatic thoughts (NAT) and 10 items on positive automatic thoughts (PAT). ATQ-18-Ar validated by the authors. All items are scored on a 5-point Likert scale, with 1=not at all and 5=all the time. The validity and reliability of the Syrian version of the ATQ-18-Ar was demonstrated by the authors. The internal consistency reliability of the 18-item ATQ-18-Ar was very satisfactory. Cronbach's alpha was 0.87 for the NT total score and 0.85 for the PT total score. The split-half reliability was 0.86 for the NT total score, 0.90 for the PT total score and 0.81 for the ATQ-18-Ar total score. The results suggested that the ATQ-18-Ar possessed high internal consistency.

#### **Beck Depression Inventory-II (BDI-II)**

The BDI-II [22] is a 21-items self-report instrument that assesses the severity of depressive symptoms in adolescents and adults over the last two weeks.

#### **Depression Anxiety Stress Scale-21**

The patients were assessed by the Depression Anxiety Stress Scale-21 (DASS-21), a 21-item self-report scale measuring characteristic attitudes and symptoms of depression, anxiety and stress [23,24].

#### **Rosenberg Self-Esteem Scale (RSES)**

The RSES consists of 10 Likert-type scale items designed to assess positive evaluations of the self [25].

#### **Satisfaction with Life Scale (SWLS)**

The SWLS is a 5-items scale designed to measure global life satisfaction [26].

### **Statistical Analysis**

Statistical analysis was performed on 27 participants [17 (10 women students and 7 MS patients) for the experimental group following the treatment of the RPPT and 10 women students for the control group not following the treatment of the RPPT]. The objective of the statistical analysis is to describe and assess changes in PSYT associated with repeating phrases positive thoughts (RPPT). To evaluate the effectiveness of this procedure, a comparison of scores before and after (T1 vs. T2) was performed for both depression scales (BDI-II and DASS-21), using a test of mean comparison Wilcoxon, considering the scale of DASS-21 as the main variable.

The effect size, using the coefficient "r" of Cohen and standardized response mean between T1 and T2 were calculated. The threshold of significance tests is 0.05. All statistical analysis was performed using R.

### **Results**

#### **Results Analysis**

20 students were analyzed: 10 for the experimental group following the treatment of the RPPT and 10 for the control group not following the treatment of the RPPT. 7 MS patients were analyzed: 7 for the experimental group following the treatment of the RPPT.

### **TRPPT and PSYT**

The treatment of the RPPT has had an effect on the experimental group compared to a control group. The hypothesis tested (H0) is rejected because the threshold used Wilcoxon test of significance (0.05) shows that there is a difference between the experimental group who repeated the RPPT and the control group did not follow the RPPT. The RPPT, thus, significantly reduce depression, anxiety and stress and confirms our hypothesis tested (H1).

In the experimental group (students and MS patients), there is a significant reduction in stress following the RPPT protocol ( $p < 0.001$ ,  $p < 0.05$ ). Participants have a diminished stress between the beginning and end of the experiment. At the level of anxiety, measures pre- and post-treatment showed a significant difference in the experimental group. Participants have less anxiety and depression due to RPPT protocol ( $p < 0.001$ ,  $p < 0.05$ ). Participants in the experimental group also improved self-esteem and satisfaction of life following the RPPT protocol ( $p < 0.001$ ,  $p < 0.05$ ) (Table 1).

### **Discussion**

This study examines the results of the treatment of the RPPT on differences mental disorders in MS patients with MDD and women students, very few people discussed so far in the literature, especially Arabic.

The results of this study show effectiveness RPPT protocol on the mental health of students and MS patients. These results are consistent with a large body of research on the psychotherapeutic approach conducted with many types of people as MBSR [27,28], BCT [15,29] and Positive Psychology [30].

The results have shown that the amendments on negative thoughts are ways to treat depression [30,32]. So, our results show that using positive thoughts are ways to treat depression and other PSYT (ANX, STR, LSE (low self-esteem) and DSIV (dissatisfaction in life). According to our results, positive automatic thoughts and RPPT are absent in cognition depressive, anxious and stressed subjects. The presence of positive automatic thoughts is then an aspect of positivity in cognition that can reduce PSYC in anxious and depressive stressed subjects.

Before RPPT, students and MS patients have a high level of depression, anxiety, stress, and a low level of self-esteem and Satisfaction with Life. After RPPT, students and MS patients have a low level of depression, anxiety, stress and a high level of self-esteem and satisfaction with life. In other words, psychological and mental disorders decreased and psychological well-being increased with the RPPT.

### **Conclusion**

This study suggests that RPPT reduce depression, stress and anxiety. Our results show that TRPPT are important

in reducing psychological disorders and treatment of these disorders.

The RPPT, therefore, improve the quality of life of the subjects, their mental health and their adaptation to their social and professional environment. The RPPT used to help people to improve their concentration, confidence, self-esteem, regulate effort and academic work and monitor cognitive and emotional reactions. The complete reduction of all forms of residual symptoms of depression or psychological disorders could be among some subjects by the RPPP, based on the thoughts. Indeed, improving the lives of subjects would be based on their thoughts, either positive or negative. These thoughts become ideas firmly embedded in their subconscious through repetition and listening. These thoughts were obviously engraved in the unconscious subjects and they govern their behavior. A repetition force positive thoughts, psychological disorders (depression, anxiety and stress) decrease in subjects. More they would be repeated, more these psychological disorders would be reduced. Eventually, these thoughts would dominate and would directly affect the way we think and act. Positive thoughts then become an effective tool, useful and relapse prevention of depression and other disorders (anxiety and stress) in subjects and in those around them.

Following these results, we recommend, diagnosis and management of students early in their academic studies, in particular through training on positive thoughts by explaining the health benefits of this approach on the success of their education but also their social relationships, self-esteem, trust in his abilities, mental, psychological and physical health and problem solving, etc...

### **Recommendations**

According to results in this study, we can conclude and recommend: RPPT and PT as a compulsory course mandatory, which is to be a pre-requirement for graduation. Professors should also link the previous two courses as of two dimensions (theoretical or intellectual and practical or behavioral), so that students should be fully aware of the link between brain course, neuroplasticity and thinking skills course.

More care should be given to training of university students and patients on the methods of positive thinking, clarifying its impact on practices of brain, neuroplasticity, quality of life, self-esteem, satisfaction with Life, PSYT and mental health, through open dialogue, problem-solving, and constructive criticism for the good of others and the society. To fulfill that universities should add credit hours as a requirement for graduation, considering that as for (direction and guidance), so that the professors can make psychologically direction and counseling for all students to enable them to exercise positive thinking and solve their problems in life, instructing them to better practices for their good and their community. Finally, RPPT must begin at an early age, i.e., from primary school or earlier.

Table 1. Effect of TRPPT on PSYT

	Experimental group, RPPT (N=17)								Control group (N=10)	
	7 MS 10 students								10 students	
	Pre-RPPT (T1) MS	Post-RPPT (T2) MS	ES T1-T2 (d)	SRM	Pre-RPPT (T1) Stu	Post-RPPT (T2) Stu	ES T1-T2(d)	SRM	Pre (T1)	Post (T2)
NAT	25.6 (9.15)	11 (4.52)*	1.595	1.590	18.40 (4.94)	9.40 (1.64)***	1.822	1.982	21.10 (3.31)	19.50 (3.10) <sup>£</sup>
PAT	21.8 (9.28)	37 (3.60)***	1.643	2.314	17.20 (9.76)	38.30 (4.83)***	2.162	1.903	21.20 (4.31)	20.50 (3.43) <sup>£</sup>
Depression-BDI-II	15.4 (7.33)	4.8 (2.16)*	1.446	1.715	18.00 (5.20)	4.40 (1.26)***	2.615	2.845	17.30 (4.00)	17.10 (4.30) <sup>£</sup>
Depression-DASS-21	9.8 (6.61)	3.0 (1.41)*	1.028	1.281	14.00 (4.39)	3.80 (1.03)***	1.962	2.138	13.30 (3.36)	12.80 (2.65) <sup>£</sup>
Anxiety-DASS -21	11.8 (6.30)	2.4 (1.51)**	1.492	1.818	14.80 (4.46)	4.6 (1.07)***	2.286	2.487	13.40 (2.83)	14.00 (3.39) <sup>£</sup>
Stress- DASS -21	13.8 (6.45)	4.8 (2.86)*	1.395	1.657	14.80 (4.02)	5.30 (2.35)***	2.363	2.393	14.20 (2.97)	14.60 (2.17) <sup>£</sup>
RSES	17.8 (4.81)	28.4 (1.14)**	2.204	2.711	16.6 (5.07)	26.8 (2.04)***	1.676	2.546	19.40 (4.29)	15.8 (4.31) <sup>£</sup>
SWLS	14.4 (7.82)	25.6 (0.89)*	1.432	1.362	17.2 (5.39)	25.10 (1.19)***	1.781	1.775	20.60 (2.95)	18.10 (3.14) <sup>£</sup>

Means and standard deviations (in parenthesis) obtained at baseline (T1) and after treatment (T2), with comparisons of means between T1 and T2 and calculation of effect sizes between T1 and T2  
MS: Multiple Sclerosis; Stu: Student; NAT: Negative Automatic Thought; PAT: Positive Automatic Thought; DASS-21: Depression Anxiety Stress Scales-21; D: Depression; A: Anxiety; S: Stress; BDI-II: Beck Depression Inventory-II; RSES: Rosenberg Self-Esteem Scale; SWLS: Satisfaction with Life Scale; T1: First stage (initial assessment). T2: Second stage (reevaluation); Pre-RPPT: Pre-Repeating Phrases of Positive Thoughts; Post-RPPT: Post-Repeating Phrases of Positive Thoughts  
\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , <sup>£</sup> $p > 0.05$   
 $p^*$ : Test de Wilcoxon; ES: Effect Size; SRM: Standardized Response Mean

Our conclusion and recommendations based on the results of our study but also on other previous research, including research Alsaleh, 2016 on TRPPT [8] and study Koseki et al., which showed the relationship between positive and negative automatic thought and activity in the prefrontal and temporal cortices [8,14,33].

**Limitations**

The main weakness is the methodological limitation of this study is that sample size is small. So, our study assumes a gender bias with small sample size. This gender bias may perhaps cause erroneous results. For this, we recommend researchers to reuse and reexamine the TRPPT with sex ratio is balanced in populations with mental disorders, in addition of physical illnesses.

It is also important to note some highlights. One of the positive points of this research is to have a control group but also clinical group. Additional, we evaluated PAT and NAT before applying the TRPPT and after applying the TRPPT.

**Future Prospects and Researches**

Treatment by Repeating Phrases of Positive Thoughts (TRPPT) has been originated as a treatment for emotional disorders (depression, anxiety and stress) among French students by Alsaleh in 2016.

However, futures researches are may be increasingly reused and reexamined the TRPPT with chronic and

mental illnesses for improve psychosocial health outcomes.

The research of Alsaleh in 2016 has not examined and not evaluated the role of confounding factors on final results. Our search has not examined these factors. Currently, we are aware of confounding factors. For it, Alsaleh is in the process of reproduce the work and its results on a clinical sample at the Hospital of Caen in taking in account these factors. For futures researches, it would be interesting to examine these factors, in addition socio-economic factors for example.

This work highlights the key role played by the positive thoughts in how to respond in a university and hospital context. This work also opens interesting perspectives in the management of depressive disorders and other psychopathological disorders (anxiety, stress, low self-esteem and dissatisfaction in life).

**Role of Care Manager, Therapists and Participants**

According to Ciccone et al., [34] a care manager plays an important role and positive impact on patient health. In addition, Alsaleh in 2016 insisted on the role of participants but also therapists. Alsaleh said "Concernant l'observance des répétitions des PPP, dans ce type d'intervention et cela de manière beaucoup plus marquée que dans des thérapies biologiques (médicaments), le sujet a un rôle primordial à jouer. Il est l'activateur et l'acteur clé de la réussite de sa démarche. En cas d'échec, il se peut que le

sujet n'ait pas été suffisamment motivé par ce protocole et qu'il ait décidé d'interrompre la démarche avant la fin du traitement. La motivation est également différente suivant son état clinique. Plus le sujet connaît des problèmes liés à l'anxiété et à la dépression ou au stress et plus il sera susceptible d'être réceptif à ce genre d'approche [8]."

Therapists can use positive thoughts in the care of their patients in hospital. We may think that in the context of support for students in academic difficulty, specific work focused on positive thoughts could be effective. Further experimental studies are needed to validate these lines of work.

Finally, also note the importance played by the therapist but also the group in this approach. Therefore, in clinical and psychotherapeutic perspective, future research on the TRPPT benefit to position itself on clinical and pathological case studies that can be supported, stimulated and guided by a therapist as part of regular meetings. This study encourages us to explore certain pathways more accurately as the commitment and quality adherence.

We see an effect TRPPT protocol on health. At present, it remains to update in more detail the reasons for this improvement, such as the role of the therapist, the exercise itself, but also the participant.

This exploratory and experimental study opens the door to comparative research on the effectiveness of treatments because the experimental results used can contribute to the measurement of change psychotherapeutic.

### **Conflict of Interest**

All the authors declare that they have no conflicts of interest with respect to this study or its publication.

### **Acknowledgement**

The authors thank all the participants in this study.

### **References**

1. Quosh C, Eloul L, Ajlani R. Syria – Refugees and Displaced in the past and current crises: Systematic Review Assessing the Mental Health Profile and System. *International Journal of Mental Health, Psychosocial Work & Counselling in Areas of Armed Conflict* 2013; 11.
2. McKenzie ED, Spiegel P, Khalifa A, Mateen FJ. Neuropsychiatric disorders among Syrian and Iraqi refugees in Jordan: a retrospective cohort study 2012-2013. *Conflict and Health* 2015; 9: 10.
3. Orient Net. Syrian refugees face depression, mental illness among series of trauma 2016.
4. Fragoso YD, Adoni T, Anacleto A, et al. Recommendations on diagnosis and treatment of depression in patients with multiple sclerosis. *Pract Neurol* 2014; 14: 206-209.
5. Siegert RJ, Abernethy DA. Depression in multiple sclerosis: A review. *J Neurol Neurosurg Psychiatry* 2005; 76: 469-475.
6. Rudwan S. The Syrian list of symptoms: A field study. *Journal of Social Sciences* 2000; 28: 113-138.

7. Rudwan S. Beck depression inventory (BDI): Syrian version. *King Saud University Journal* 2003; 1: 453-486.
8. Alsaleh M. Analyse psychosociale et cognitive de la santé mentale chez les étudiants de première année: - Validation du questionnaire des pensées positives et négatives et du questionnaire de la dépression de Beck - Effet des pensées positives et des facteurs psychosociaux. *Laboratoire du CERReV (EA 3918), Université de Caen Normandie* 2016.
9. Alsaleh M, Lebreuilly R, Lebreuilly J, et al. The relationship between negative and positive cognition and psychopathological states in adults aged 18 to 20. *Journal de Thérapie Comportementale et Cognitive* 2016; 26: 79-90.
10. Feinstein A. Multiple sclerosis and depression. *Mult Scler J* 2011; 17: 1276-1281.
11. Syria direct. Damascus University student on life after graduation: 'You can't stay and you can't leave' 2016.
12. Ciechanowski P, Katon W. Impact of major depression on chronic medical illness. *J Psychosom Res* 2002; 53: 859-63.
13. Alsaleh M, Lebreuilly R, Lebreuilly J, et al. Cognitive balance: States-of-mind model and mental health among French students. *Best Practices in Mental Health* 2015; 11: 42-53.
14. Zarghuna N, Ruhi K. Positive thinking in coping with stress and health outcomes: Literature review. *JRRE* 2010; 4: 42-61.
15. Buenaver L, Quartana P, Simango M, et al. Sleep disturbance mediates the association between catastrophizing and clinical pain in temporomandibular joint disorder. *J of Pain* 2011; 12: 77.
16. Hurt CS, Burn DJ, Hindle J, et al. Thinking positively about chronic illness: An exploration of optimism, illness perceptions and well-being in patients with Parkinson's disease. *Br J Health Psychol* 2014; 19: 363-379.
17. Wong SS. Negative thinking versus positive thinking in a Singaporean student sample: Relationships with psychological well-being and psychological maladjustment. *Learning and Individual Differences* 2012; 22: 76-82.
18. Cohen J. *Statistical Power Analysis for the Behavioral Sciences* (2nd Ed.) Lawrence Erlbaum Associates, Hillsdale, NJ 1988.
19. Anastats. *Formations, études et conseil en statistiques; Comprendre et appliquer les statistiques sans compétences particulières en mathématiques* 2015.
20. Hollon SD, Kendall PC. Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy and Research* 1980; 4: 383-395.
21. Kendall PC, Howard BL, Hays RC. Self-referent speech and psychopathology: The balance of positive and negative thinking. *Cognitive Therapy and Research* 1989; 13: 583-598.
22. Beck AT, Steer RA, Brown GK. *BDI-II manual*. London: The Psychological Corporation 1996.
23. Loviband SH, Loviband PF. *Manual for the depression*

- anxiety stress scales (2nd ed.) Psychology Foundation, Sydney 1995.
24. Taouk M, Lovibond PF, Laube R. Psychometric properties of an Arabic version of the depression anxiety stress scales (DASS21). Report for New South Wales Transcultural Mental Health Centre, Cumberland Hospital, Sydney 2001.
  25. Rosenberg, M. Society and the adolescent self-image. Wesleyan University Press, Middletown, CT 1989.
  26. Diener E, Robert A, Emmons RJL, et al. The satisfaction with life scale. *Journal of Personality Assessment* 1985; 49: 71–75.
  27. Baer R. Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clin Psychol Sci Pract* 2003; 10: 125-42.
  28. Berghmans C, Tarquinio C, Kretsch M. Impact de l'approche thérapeutique de pleine conscience mindfulness-based stress reduction (MBSR) sur la santé psychique (stress, anxiété, dépression) chez des étudiants: Une étude pilote contrôlée et randomisée. *JTCC* 2010; 20: 11-15.
  29. Lobjoie C, Péliissolo A. Résultats d'une thérapie comportementale et cognitive de groupe spécifique de l'éreutophobie. *L'Encéphale* 2012; 38: 345-350.
  30. André C. La psychologie positive: Un outil de prévention des rechutes? Paris: Centre hospitalier Sainte-Anne 2010.
  31. Beck AT, Rush AJ, Shaw BF, et al. Cognitive therapy of depression. Guilford Press, New York 1979.
  32. Hollon SD, Beck AT. Cognitive-behavioral intervention: Theory, research and procedures. Academic Press, New York 1979.
  33. Koseki S, Noda T. The relationship between positive and negative automatic thought and activity in the prefrontal and temporal cortices: A multi-channel near-infrared spectroscopy (NIRS) study. *Journal of Affective Disorders* 2013; 151: 352-359.
  34. Ciccone MM, Aquilino A, Cortese F, Scicchitano P, Sassara M, et al. Feasibility and effectiveness of a disease and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo). *Vasc Health Risk Manag* 2010; 6: 297-305.

**Correspondence to:**

Muaweah Ahmad Alsaleh,  
 PhD, Neuropsychologist, Psychotherapist,  
 Center for Research on Risks and Vulnerabilities,  
 University of Caen Normandy & CHU de Caen,  
 France.  
 E-mail: moaouiya87@yahoo.com