

# Relaxation therapy for anxiety: an observational study of a process oriented approach

Jan van Dixhoorn<sup>1</sup>, Mia Scheffers<sup>2</sup>, Jooske van Busschbach<sup>2,3</sup>

## Corresponding author

Jan van Dixhoorn  
Centre for Breathing Therapy,  
Amersfoort; Spaarne Academy,  
Haarlem, The Netherlands  
email: jvdixhoorn@euronet.nl

## Affiliations

<sup>1</sup> Centre for Breathing Therapy,  
Amersfoort; Spaarne Academy,  
Haarlem, The Netherlands

<sup>2</sup> Windesheim University of Applied  
Sciences, Zwolle, The Netherlands

<sup>3</sup> University of Groningen,  
University Medical Center  
Groningen, University Center of  
Psychiatry, Rob Giel Research  
Center

## Copyright

© National Wellbeing Service Ltd

## Funding

None declared

## Declaration of conflicting interests

Jan van Dixhoorn is the director of the centre where therapists are educated

## Acknowledgments

Thanks are due to Annelee Mataheru and Rikkie Overbeek who performed the qualitative data processing and to all therapists who contributed to the database

## Abstract

**Introduction** In a review of classical relaxation therapy for anxiety a moderate effect size was found. From the perspective of a process oriented approach to relaxation therapy, this means that some clients are responsive and have habitual high tension, while in others background factors are present that maintain a high tension and require other treatment as well. This idea was tested on outcome data in daily practice.

**Design** Observational study. The question was in how many clients with anxiety, 'blocking stressors' were present.

**Material** Nijmegen Questionnaire (NQ) was completed before and after treatment.

**Participants** Treatment data were collected in a national Dutch web-based registry of the 'Breathing and Relaxation Foundation' (BRF). Participants with anxiety were 255 out of 3251 clients.

**Results** In 119 of them (47%) 'blocking stressors' were detected. In the absence of such stressors, NQ decreased much more and 'normalized' for many clients.

**Conclusion** The outcome confirmed that a moderate effect size, on average, implies that part of the population really benefits, but others do not.

**Keywords:** Stress – anxiety – relaxation therapy – habitual tension – process oriented approach

## Abstrait

**Introduction** Dans un examen de la thérapie de relaxation classique pour l'anxiété, une taille d'effet modérée a été trouvée. Du point de vue d'une approche axée sur les processus de relaxation, cela signifie que certains clients réagissent et ont une forte tension habituelle, tandis que d'autres facteurs de fond sont présents qui maintiennent une tension élevée et nécessitent d'autres traitements. Cette idée a été testée sur les données de résultats dans la pratique quotidienne.

**Conception** Étude observationnelle. La question portait sur le nombre de clients souffrant d'anxiété, de 'stress contraignant'.

**Matériel** Le questionnaire Nijmegen (NQ) a été complété avant et après le traitement.

**Participants** Les données sur le traitement ont été recueillies dans un registre national néerlandais de la «Fondation pour la respiration et la détente» (BRF). Les participants atteints d'anxiété étaient 255 des 3251 clients.

**Résultats** Dans 119 d'entre eux (47%), 'des facteurs de blocage' ont été détectés. En l'absence de tels facteurs de stress, NQ a diminué beaucoup plus et a été normalisé pour de nombreux clients.

**Conclusion** Le résultat a confirmé qu'une taille d'effet modérée, en moyenne, implique qu'une partie de la population bénéficie réellement, mais d'autres ne le font pas.

**Mots clés:** Stress - anxiété - thérapie de relaxation - tension habituelle - approche orientée processus

## Introduction

Relaxation therapy is the therapeutic use of ‘relaxation techniques’ with the aim to reduce the strain and tension within an individual, and thereby diminishing stress-related complaints. Common techniques are various forms of muscle relaxation, use of mentally soothing words or formulas, respiratory instructions, manual techniques and many others. Although the techniques are widespread, have a long history, and have statistically highly significant effects, effect size on average is moderate (Manzoni, Pagnini, Castelnuovo, & Molinari, 2008). Moreover, different techniques do not appear to have a specific effect, but seem to be rather interchangeable (Stetter & Kupper, 2002). Therefore, a ‘process oriented’ approach in which attention is paid to the match between type of intervention and client and continuous adaptation of techniques guarantees its personalised character, should be preferred. This approach is explained at the outset of treatment to obtain ‘informed consent’ and entails the following:

1. *The client is invited to participate in a limited number of sessions with the explicit purpose to find out which relaxation procedure suits him or her best and whether any positive effect appears.*
2. *The client is offered a number of different techniques, practices them and discusses experiences in each subsequent session. Further homework is adjusted to the client’s experiences. Thus, the techniques are adapted to the client and the client does not have to follow the specific protocol of a particular technique.*
3. *Therapist and client are keen for signs of background factors, which continue to cause strain and tension and may block the effect of relaxation (alternatively, whether the strain has diminished despite them and does not seem to be dominant.) The presence of such ‘blocking stressors’ is a reason to consider alternative treatment options.*

In a process oriented approach there is no promise of any effect, but the cooperation of the client is sought in a discovery process to find out what relaxation procedure really works. If actual and relevant stressors are present, that will show in the course of treatment. Thus, in the first sessions the practitioner and client assess whether a relaxation procedure is feasible and it would seem worthwhile to continue relaxation. The initial sessions serve as a screening.

High tension produces an agitated, uneasy and restless state in which physical sensations may easily be interpreted in a ‘panicky’ way and thus cause or aggravate anxiety. However, when relaxation enables the participant to reach a more quiet state, the ‘panic’ interpretation and the anxiety symptoms may vanish.

Thus, although the adage of Wolpe that ‘when relaxed, one cannot be anxious’ is not generally true, for some clients it is true (Wolpe, 1958). Once really relaxed, the world looks a different place (Kaspareen, 2012). Every practitioner of relaxation strategies will recognize this. The relaxation experiences are ‘welcomed’, the client is clearly responsive and the therapist concludes that the capacity for self-regulation is intact.

In a review by Italian psychiatrists of 28 studies, largely using the classical methods of progressive muscle relaxation and mental relaxation like autogenic training and meditation, 19 of them were randomized clinical trials (RCT). They demonstrated an overall average clinical effect of moderate size (Cohen’s  $d = 0.57$ ). The effect was statistically highly significant (Manzoni et al., 2008). An average ‘moderate’ effect however does not mean that all patients improved a little bit. The present authors’ interpretation would be that some improve a lot and others much less. If this idea is true, the challenge in clinical practice is to find out, which clients are responsive. For them, continuation of relaxation therapy is justified and promising.

An observational study of a series of clients treated in a process oriented approach of relaxation therapy is suitable to clarify this issue (Mataheru, Overbeek, Scheffers, & Van Dixhoorn, 2014). In the process oriented approach of relaxation practice, instructions are used to select clients, who are open to self-regulation of tension. For them, anxiety is largely caused by what Jacobson called ‘residual tension’ (Jacobson, 1970) or what Lum called ‘habitual tension’ (Lum, 1981). Thus, strain and high tension are clearly present, but it is responsive to relaxation procedures. Since it is not known beforehand whether stressors are actually present and relevant, the practitioner of the process oriented approach starts treatment in an open fashion: ‘It is possible that your complaints are caused by high and habitual tension. We can find out if this is really the case, by you applying relaxation procedures’. The practitioner shows a picture of the rise of habitual tension (see Figure 1) and elicits the cooperation of the client in this discovery process, thus encouraging the practice of different techniques as well as a neutral attitude of self-observation in reporting experiences.

The research question to be studied is, “How many subjects with anxiety have ‘blocking stressors’?”

## Method

### Participants

Treatment data are collected in a national Dutch web-based registry of the ‘Breathing and Relaxation Foundation’ (BRF).

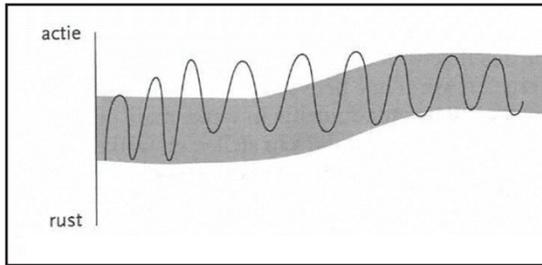


Figure 1 (above): Origin of habitual tension. Actie: activity. Rust: resting state. Shaded area: internal referent of tension level. Line: actual tension level. First period: actual tension increases and is experienced as such. Second period: internal referent adapts, shifts upwards and becomes more narrow, levels of rest shift upwards as well, higher tension becomes 'normal' and remains, even when stressors disappear. Reproduced with permission from: J. van Dixhoorn, Ontspanningsinstructie, principes en oefeningen. Houten, Springer Media, 2014.

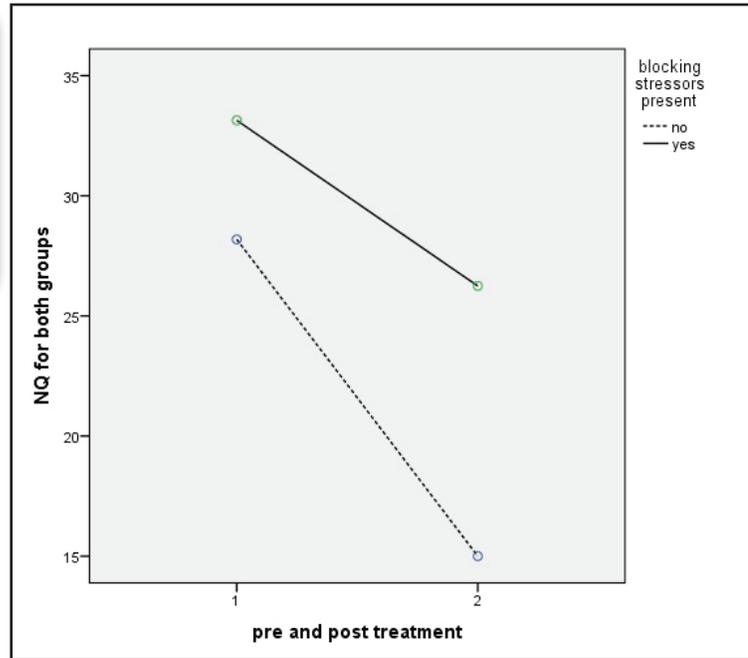


Figure 2 (right): Pre and post treatment NQ scores for clients with and without 'blocking stressors'

Data are uploaded by certified practitioners, registered with the BRF. Between 2006 and 2011 data from 3251 clients were included, 255 of them were classified as clients with anxiety. The study protocol was approved by the Medical Ethical Committee of the Alkmaar Medical Centre.

### Measurements

Nijmegen Questionnaire (NQ) was completed before and after treatment (Van Dixhoorn & Folgering, 2015). The NQ is a 16-item questionnaire, that measures anxiety, tension and dyspnoea. Questions can be answered on a five-point Likert scale (never = 0, seldom = 1, sometimes = 2, often = 3, very often = 4), scores range between 0 and 64. Normal values are 12, while below 20 is considered the threshold.

Number of treatment sessions was recorded at the end of treatment.

The role of stressors in the complaints is rated by the practitioner in the course of treatment: absent or not relevant = 0, initially present but changed and not blocking any more = 1, present and actually blocking a positive response in strain or complaints = 2, other problem dominates = 3. Subjects

were divided into two groups, those with and without blocking stressors.

Presence of DSM-IV diagnosis (Smith et al., 2005) was recorded at entry: yes = 1, no = 2

Work status was recorded at entry and at the end: yes, fulltime = 1, not fulltime = 2

### Data analysis

All variables were related univariately to the outcome variable: presence or absence of blocking stressors. Continuous variables were tested with student's t-test, nominal variables were tested by chi-square test. The role of stressors in the reduction of NQ scores was tested by a two-way repeated measurements analysis of variance, with time as one factor and group as another.

### Results

Out of 254 clients 119 (47%) appeared to have blocking stressors (see table 1). The stressors are diverse, ranging from conflicts at work, to problems in the relational and private domain to serious medical somatic problems, in the client or the family. Clients with blocking stressors more often have a DSM-IV

diagnosis at entry (n = 32, (27%)), than those without 'blocking stressors' (n = 18, (13%); p < 0.01). They are working full time less often at entry (n = 24 (20%) vs n = 51 (38%); p < 0.01). Post treatment, they are still working full time less often (n = 23 (19%) vs n = 57 (42%); p < 0.001). There is no difference in age or gender. Treatment was more frequently aborted within the initial screening phase of 3-4 sessions for those with 'blocking stressors' (p < 0.01). At entry, scores on NQ were higher for those with 'blocking stressors' (33.6 (SD 11.1) vs 28.5 (SD 10.6); p < 0.001). Post-treatment the scores were significantly lower for both groups, (factor time F = 215, df = 1, p < 0.0001) but the pre-post difference was significantly smaller (M = 15 (SD 7.4) vs M = 26,3 (SD 11.3); p < 0.001) for clients with 'blocking stressors' (interaction time\* group, F (1.173) = 21.2, p < 0.0001) (see Figure 2).

**Discussion**

The results of experimental studies, summarized in a review and meta-analysis, demonstrate a statistically highly significant effect of relaxation therapy on anxiety, but with a moderate effect size (Manzoni et al., 2008). Although the Italian psychiatrists who wrote the review, interpreted the outcome as support for their use of relaxation therapy for anxiety, the authors of this paper would say that this outcome is hardly sufficient to recommend relaxation therapy as a standard treatment for all clients with anxiety. Nevertheless, relaxation is a reasonable option, at least for some clients. In this study relaxation appeared indicated for 53% of the clients. In this group, in which clients respondent to treatment NQ decreased to a much larger degree, for many even 'normalizing'. It indicates that the problem often seems solved. This supports

the interpretation of the authors of a moderate effect size, as implying that some clients may truly benefit (they have 'habitual tension'), but others benefit less (effect is hampered by 'blocking stressors'). Thus, observational studies like the present are useful to complement the evidence of experimental studies (Vandenbroucke, 1999; Vandenbroucke, 2006, 2008). In case of anxiety, both sources of evidence indicate that an average moderate outcome needs to be differentiated in good and poor responders.

We found that clients with a DSM diagnosis have more chance for 'blocking stressors', and that clients who still function adequately (e.g. maintaining a full time job) have less chance for 'blocking stressors'. Moreover, we found that more clients who eventually appear to have 'blocking stressors' will stop relaxation therapy within four sessions. Thus, the client may quickly discover that relaxation is not the best treatment for him or her, and the practitioner acknowledges that. We performed a multivariate prediction analysis on all variables that were associated with the presence of 'blocking stressors' (R2 = 0.63) and presented it at ISARP (Van Dixhoorn, Mataheru, Overbeek, Scheffers, & Van Busschbach, 2014). For this paper, however, the focus is on the conclusion that the option of relaxation

Item	Blocking stressors absent n = 135 (53%)	Blocking stressors present n = 119 (47%)
Age (years, SD)	38.5 (13.3)	40.2 (13.6)
Women (n) (%)	101 (74.8)	91 (76.5)
DSM-IV diagnosis (n) (%)	18 (13.3)	32 (26.9)*
Works fulltime pre (n) (%)	51 (38)	24 (20)*
Works fulltime post (n) (%)	57 (42)	23 (19)
Number of sessions (n) (%)		
1-3	8 (6)	25 (21)*
4-8	92 (70)	69 (58)
> 8	32 (24)	25 (21)
NQ pre-treatment (Mean, SD)	28.5 (10.6)	33.6 (11.1)**
NQ post-treatment (Mean, SD)	15.0 (7.4)	26.3 (11.3)**

**\*p < 0.01 \*\*p < 0.001**  
**NQ: Nijmegen Questionnaire, score available from 236 patients pre-treatment and 175 patients post treatment**

**Table 1: Characteristics and outcome of clients with and without apparent blocking stressors (n=254)**

therapy may be put to the client on the condition that it is carried out in a 'process oriented format'.

The 'process oriented format' entails, first, that relaxation is not limited to a single technique or method, but that elements of all or most known techniques are offered. The client does not have to adapt to the protocol of the chosen method, but the techniques are adapted to the possibilities of the client. Second, cooperation of the client is explicitly sought to try all offered techniques, select which are most feasible and effective for him or her and report the experiences. Third, practitioner and client are aware that background factors may be present that hamper either relaxation practice or are a source of continuing stress that maintains tension complaints.

In those cases, the situation of the client is more complex, self-regulation of tension is hardly feasible and the sources of stress need to be dealt with. In fact, the 'process oriented approach' serves well as a screening procedure to select clients with a complex situation that deserves attention. Our data show that this criterion selects more clients than the presence of a DSM diagnosis.

### Limitations of observational data

An observational data set like ours has some limitations next to its advantages. It reflects clinical practice and as such is externally valid: the outcome can be generalized to other practices. However, one limitation is that the population consists of referred clients, who were willing to participate in the treatment. So, there is one source of internal invalidity in the design, namely bias by indication. This is inevitably present in data collecting from daily practice, where the practitioner's effort is often directed at acquiring the proper clients. Another limitation is the short term outcome. In daily practice it is difficult to organize long term follow-up. That needs additional effort, which is usually associated with the organization of a Randomised Clinical Trial (RCT). So, we have only pre-post data and we lack follow-up information. However, a three year follow up of an RCT with anxiety patients did show stable good results (DeGuire, Gevirtz, Hawkinson, & Dixon, 1996).

Similarly the first author carried out a three-year follow up of 54 anxiety and hyperventilation patients and found a lasting reduction of NQ, but only in patients who responded positively to the initial treatment, that is those clients we would now classify as 'without blocking stressors' (unpublished data). The number of treatment responders was  $n = 33$  (61%).

### Conclusion

Data from a review of experimental studies, showing that relaxation is moderately effective in reducing anxiety, is confirmed by an observational study from clinical practice. A moderate effect size means that some patients greatly benefit and their problem is largely solved, while others hardly benefit at all. From a 'process oriented approach' we would say that the first are responsive, their self-regulation is intact and their anxiety is largely the result of habitual tension, while in the others blocking stressors are present that require other treatment. It is important to differentiate the two during the initial treatment. ■

### Biographies

**Jan van Dixhoorn** is director of the Centre for breathing and relaxation therapy in Amersfoort, The Netherlands, where a three year part-time postgraduate course in breathing & relaxation therapy is taught. He expanded classical relaxation techniques with modern elements, a process oriented theory, published widely on its effect in health and wellbeing and set-up an online database for treatment outcome.

 <http://orcid.org/0000-0002-4416-9444>

**Mia Scheffers** is lecturer at Windesheim University of Applied Sciences. She is a member of the research group on Movement, Health and Well-being. Her research focuses on body experience in people with mental health problems, and on the role of body and movement oriented interventions in the treatment of trauma related disorders.

 <http://orcid.org/0000-0003-0469-1569>

**Joske van Busschbach** is a child psychologist and lecturer at Windesheim University of Applied Sciences and leader of the research group on Movement, Health and Well-being and also a senior researcher at the University Center of Psychiatry, University Medical Center Groningen. She is specialized in research on psychosocial interventions in mental health care with an emphasis on body and movement oriented therapy (psychomotricity).

 <http://orcid.org/0000-0002-9362-7798>

## Citation

Van Dixhoorn, J., Scheffers, M., & Van Busschbach, J. T. (2017). 'Relaxation therapy for anxiety: an observational study of a process oriented approach'. *International Journal of Stress Prevention and Wellbeing*, 1, 8, 1-6. Retrieved from: <http://www.stressprevention.net/volume/volume-1-2017/volume-1-article-8/>

## References

- DeGuire, S., Gevirtz, R., Hawkinson, D., & Dixon, K.** (1996). Breathing retraining: a three-year follow-up study of treatment for hyperventilation syndrome and associated functional cardiac symptoms. *Biofeedback and Self-regulation*, 21, 191-198.
- Jacobson, E.** (1970). *Modern treatment of tense patients*. Springfield Illinois: Ch C Thomas.
- Kaspereen, D.** (2012). Relaxation intervention for stress reduction among teachers and staff. *International Journal of Stress Management*, 19, 238-250.
- Lum, L. C.** (1981). Hyperventilation and anxiety state. *Journal of the Royal Society of Medicine*, 74, 1-4.
- Manzoni, G. M., Pagnini, F., Castelnuovo, G., & Molinari, E.** (2008). Relaxation training for anxiety: a ten-years systematic review with meta-analysis. *BMC Psychiatry*, 8, 41.
- Mataheru, A., Overbeek, R., Scheffers, M., & Van Dixhoorn, J.** (2014). *Het effect van Adem - en Ontspanningstherapie op mensen met angstklachten*. Master's Thesis, University of Applied Sciences, Zwolle.
- Smith, R. C., Gardiner, J. C., Lyles, J. S., Sirbu, C., Dwamena, F. C., Hodges, A., & Goddeeris, J.** (2005). Exploration of DSM-IV criteria in primary care patients with medically unexplained symptoms. *Psychosomatic Medicine*, 67, 123-129.
- Stetter, F., & Kupper, S.** (2002). Autogenic training: a meta-analysis of clinical outcome studies. *Applied Psychophysiology and Biofeedback*, 27, 45-98.
- Vandenbroucke, J. P.** (1999). Case reports in an evidence-based world. *Journal of the Royal Society of Medicine*, 92, 159-163.
- Vandenbroucke, J. P.** (2006). Levels of evidence are insufficient. *Nederlands tijdschrift voor geneeskunde*, 150(45), 2485.
- Vandenbroucke, J. P.** (2008). Observational research, randomised trials, and two views of medical science. *PLoS Med*, 5(3), e67. doi:10.1371/journal.pmed.0050067
- Van Dixhoorn, J., & Folgering, H.** (2015). The Nijmegen Questionnaire and dysfunctional breathing. *European Respiratory Journal Open Research*, 1(1).
- Van Dixhoorn, J., Mataheru, A., Overbeek, R., Scheffers, M., & Van Busschbach, J.** (2014). *Process oriented relaxation therapy for anxiety, does the diagnosis matter?* Paper presented at the ISARP (International Society for the Advancement of Respiratory Psychophysiology), 19-21 September, New Jersey.
- Wolpe, J.** (1958). *Psychotherapy by reciprocal inhibition*. Stanford: Stanford University Press.