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Fachkliniken Nordfriesland gGmbH

Krankenhausweg 3
25821 Bredstedt
www.fklinf.de



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Chronic exposure to neurotoxic substances: Is the SCL-90-R able to differentiate between Neurotoxicity and Psychopathology?

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Introduction: Persons who are chronically exposed to neurotoxic substances often name a number of symptoms described as "neuropsychological", i.e. headaches, difficulties to concentrate, memory problems, depressive feelings and vertigo, respectively. As neither the effects of neurotoxicants nor the possible sources are widely known by medical professionals, these symptoms are often attributed to psychological problems. As a rule psychometric questionnaires as for example the SCL-90-R are used to measure psychopathology and help to find a diagnosis. The goal of this comparison of instruments was, to find out, to which degree the SCL-90-R asks similar questions as questionnaires measuring neurotoxicity.

Methods: An analysis of the similarity of items was done on the SCL-90-R and on five selected and validated questionnaires of symptoms of neurotoxicity (Q_{nt}).

Results: An outstanding similarity of items was seen in the subscale 1. of the SCL-90-R "Somatization" as 50-92% of the items were also present in the five Q_{nt} . Further similarities were present in the subscales 2. "Obsessive-compulsive" (20-30%), 4. "Depression" (23-54%), 5. "Anxiety" (10-20%) and 6. "Hostility" (0-17%). But no items of the subscales 3. "Interpersonal Sensitivity", 7. "Phobic anxiety" and 8. "Paranoid anxiety" were part of the Q_{nt} . Only one item of the subscale 9 of the SCL-90-R "Psychotic symptoms" was present in only one Q_{nt} .

Conclusion: We conclude that persons with symptoms after exposure to neurotoxic substances will presumably score high in the subscale 1. of the SCL-90-R "Somatization". Moderately elevated scores are further probable in the subscales 2. "Obsessive-compulsive", and 4. "Depression". A slight elevation of scores can be expected in the subscales 5. "Anxiety" and 6. "Hostility".

The results of this analysis questions the diagnostic use of the SCL-90-R in persons with symptoms after exposure to neurotoxic substances. Possible misclassification and false diagnosis include somatization disorders, obsessive-compulsive disorders, depression and anxiety disorders.

Von:

Dr.rer.nat. Anke Bauer

Dr. Med. Christoph Mai

Dr.med. Eberhard Schwarz

Fachkrankenhaus Nordfriesland, Krankenhausweg 1-3

25821 Bredstedt (Schleswig-Holstein)

Tel. 04671 408 106, Fax. 04671 408 110

email: dr-anke-bauer@web.de

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