

# Auditory distraction and thought disorder in chronic schizophrenic inpatients

## Evidence for separate contributions by incapacity and poor allocation and a subsyndrome related to the allocation deficit

R. Kevin Moser<sup>a,\*</sup>, Angel Cienfuegos<sup>b</sup>, Jorge Barros<sup>c</sup>, Daniel Javitt<sup>b</sup>

<sup>a</sup>*Coney Island Hospital, 2601 Ocean Parkway, Brooklyn, NY 11235, USA*

<sup>b</sup>*Nathan Kline Institute for Psychiatric Research, C.R.E.F. Unit, 140 Old Orangeberg Road, Building 35, Old Orangeburg, NY 10962-1167, USA*

<sup>c</sup>*Departamento de Psiquiatria, Facultad de Medicina, University Catolica de Chile, Santiago de Chile*

Received 5 January 2000; accepted 26 June 2000

---

### Abstract

This study investigated auditory attentional processes associated with schizophrenic thought disorder. Thirty-five chronically schizophrenic, state hospital inpatients were assessed for thought disorder using the Thought, Language, and Communication Disorders Scale (TLC) and tested in an attentional task. Two measures of attention were derived from the Digit Span Distraction Test (DSDT) (Oltmanns, T.F., Neale, J.M., 1975. Schizophrenic performance when distractors are present: attentional deficit or differential task difficulty. *J. Abnorm. Psychol.* 84, 205–209), a digit recall task in which distractor digits were interspersed with target digits. The two measures were Distractibility — the overall inaccuracy of recall — which measured attentional incapacity, and Distractible Intrusion — the number of irrelevant digits recalled — which was developed in this study to separately measure the inability to allocate attentional resources. These two measures predicted thought disorder strongly and independently. Distractibility did not significantly correlate with any TLC subscale. In contrast, Distractible Intrusions correlated with the TLC subscales Distractible Speech, Incoherence, Loss of Goal, and Word Approximations. The present findings suggest that these subtypes may comprise a distinct subsyndrome of thought disorder, characterized by a dysfunctionally low threshold for selecting appropriate speech information, and that an attentional allocation deficit is related to this language dysfunction. © 2001 Elsevier Science B.V. All rights reserved.

*Keywords:* Auditory distraction; Distractibility; Distractible intrusion; Schizophrenia; Thought disorder

---

### 1. Introduction

There is a long tradition of literature linking attention to schizophrenic thought disorder. Kraepelin (1919) suggested that the impairment of thought and

speech he observed in dementia praecox patients might be associated with inattention. Since then, many investigators have considered that impaired attention is fundamental to schizophrenia. Chapman and McGhie (1962) suggested that a failure of perceptual gating produced an overload in the information processing system of schizophrenics. Oltmanns and Neale (1975) suggested that active, controlled, limited

---

\* Corresponding author. Tel.: +1-917-312-6590.

E-mail address: rkevm@aol.com (R.K. Moser).

capacity operations are more vulnerable to distraction in schizophrenic than normal subjects, leading to the observed attentional deficits. Using the Digit Span Distraction Test (DSDT), Oltmanns and Neale (1975) showed that schizophrenics are more vulnerable to auditory distraction than normals. Harvey and colleagues (Harvey and Serper, 1990; Harvey et al., 1986; Hotchkiss and Harvey, 1990) have shown that auditory distractibility is associated with positive thought disorder.

It has been hypothesized that failure to exclude distracting stimuli is related to thought disorder (failure to exclude irrelevant associations). Maher (1972) wrote:

The attentional disturbances believed to affect the processing of sensory input ... also underlie the failure to inhibit associations from intruding into language utterance. Intrusions of associations into language may be regarded as similar in character to the 'intrusions' of background auditory and visual stimuli into the perceptual processes of the schizophrenic patient. (p. 12)

This study tests the hypothesis that intrusions of associations into language are related to intrusions of background auditory stimuli and attempts to elucidate the nature of this attentional disturbance.

Recent studies of attentional functioning in schizophrenics have used dual task performance to examine allocation (Granholm et al., 1996; Asarnow et al., 1991). These investigators found that the poor performance of schizophrenic patients in a dual task (simultaneously searching for letters and shadowing text) is not due to impaired allocation of resources; in other words, that the limited capacity of patients with schizophrenia is not the result of their inability to direct attentional resources as instructed by the experimenters. We hypothesized that poor allocation would be related to the severity of thought disorder in schizophrenic patients. To measure the allocation deficit, an alteration in the DSDT constructed by Oltmanns and Neale (1975) was devised. These investigators measured the recall of target digits when distractor digits were interposed. The same task was used, only with sets of target and distractor digits in each trial that were non-overlapping. This permitted the separate measurement of capacity and allocation. The inaccuracy of recall under conditions of distraction

was used as a measure of attentional incapacity, and the number of distractors incorrectly recalled as a measure of impairment of allocation.

This study seeks to advance our understanding of the relation between auditory distraction and thought disorder in schizophrenia in two ways. First, we looked at whether deficits in capacity and allocation of resources are specifically and separately related to the severity of thought disorder. It is well established that poor recall of digits under conditions of distraction is related to the severity of thought disorder (Harvey and Serper, 1990; Harvey et al., 1986; Hotchkiss and Harvey, 1990). We asked if an inability to allocate resources, such that distractors are included, is specifically and independently related to thought disorder.

The second issue examined by this study is whether distraction is specifically related to any particular subtype or dimension of schizophrenic thought disorder. Despite widespread agreement that thought disorder is a multidimensional construct (Andreasen, 1982; Cutting and Murphy, 1986; Barch and Barenbaum, 1996), it is often treated as a unitary process, explainable by a single cognitive deficit or language dysfunction. We hypothesized that certain subtypes of thought disorder, namely those characterized by disorganized thinking, would be more strongly correlated with distraction than others. Recently McGrath (1996) proposed a model of the pathogenesis of thought disorder based on the notion of cognitive set, suggesting that poor error monitoring and disruptions in establishing, maintaining, and changing set are processes that underlie thought disorder. According to McGrath, poverty of speech is related to inability to initiate a set; inability to maintain a set underlies tangentiality, derailment, loss of goal and distractible speech; while inability to change sets is related to perseveration. Inability to allocate resources so as to exclude distractor digits is an example of inability to maintain set, and we hypothesize that poor allocation will be related to tangentiality, derailment, loss of goal, and distractible speech as well as to incoherence. Even though McGrath does not include incoherence in this group, it clearly should be included since it is a severe and highly characteristic symptom of disorganized and disconnected thinking. Illogical thinking might be included as a type of disorganization, but it is not disorganized because of disconnectedness as the others are, so its status is ambiguous.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات