Acta Neuropsychiatrica 2009: 21: 2–3
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DOI: 10.1111/j.1601-5215.2008.00336.x

ACTA NEUROPSYCHIATRICA

Editorial

A piano composer with low-functioning severe autism

Autism spectrum disorders (ASD) is a collective term given to developmental disabilities that impair the way that individuals interact and communicate with others (1). ASD is characterised by a triad of clearly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activities and interests (2). Specifically, ASD patients display a need for sameness, which sometimes leads to rigid routines and repetitive behaviour (3).

Along with the deficits, autistic subjects may have 'islets of ability' (4). In this regard, music is an ability frequently reported in high-functioning autistic individuals (5,6). However, creative music abilities have been reported rarely in low-functioning autistic individuals. Here, we describe a detailed musical analysis of the piano pieces composed by an Italian female non-verbal patient affected by a severe form of low-functioning ASD.

The patient was the first child of healthy, unrelated parents. The family history was negative with regard to autism or other developmental or psychiatric disabilities. Pregnancy and delivery were uneventful. Early growth milestones suggested atypical development, especially as for almost complete absence of speech, sporadic repeating of single words accompanied by a hypersensibility to sounds, no reaction to call, absence of join attention, limited play repertoire, insistence on sameness, head banging, body rocking and finger tapping. After the exclusion of behaviour anomalies because of auditory problems, she was diagnosed as having ASD at the age of 3 years. During adolescence, her behaviour worsened with episodes of self-injury and tantrum crisis. At the age of 18 years, she was admitted to a long-term care hospital in Switzerland where she remained for 17 years. In 2004, she was transferred to an Italian farm community specifically designed for adult individuals with ASD (Cascina Rossago, San Ponzo Semola, Italy). The patient is currently 40 years old, she has a limited functional outcome, her Childhood Autism Rating Scale (CARS) score is 51 (scores range from 15 to 60; cut-off for severe autism >30) (7), her speech is absent and her social interactions are poor. Vocal and motor stereotypes are frequent.

Although the patient never received formal musical education, at the age of 3–4 years she started to play her own brief original pieces at home on the piano. She demonstrated a correct and intuitive position of fingers on the keyboard. Currently, the patient is accustomed to play her own piano pieces whenever she approaches a piano. However, her piano compositions have shown minimal modifications over the years.

To gain a better understanding of the patient's musical abilities, her piano compositions were recorded in January 2007 by means of a MIDI keyboard. Moreover, two professional musicians notated her piano pieces in a printed form. Currently, her repertoire covers approximately 10 brief pieces that she plays in different order in each of her performances. The compositions are presented sequentially separated by short breaks. The patient shows a striking ability to keep the tempo during each of her composition. The structural organisation of her pieces is chiefly based on the harmonic component without close attention to the melodic line. Chords are usually complex and frequently inverted, rich of dissonant major and minor sevenths and ninths. She also shows a marked tendency to stress the accents to weak beats, as typical of jazz music. Her playing is characterised by frequent use of pedal notes and short repetitive phrases. As an example (Fig. 1), we show an arpeggio in 16th notes played with the right hand accompanied by 8th notes on the left hand.

Although autism is characterised by stereotypies and sameness, there is evidence to suggest that high-functioning ASD patients may show unexpected

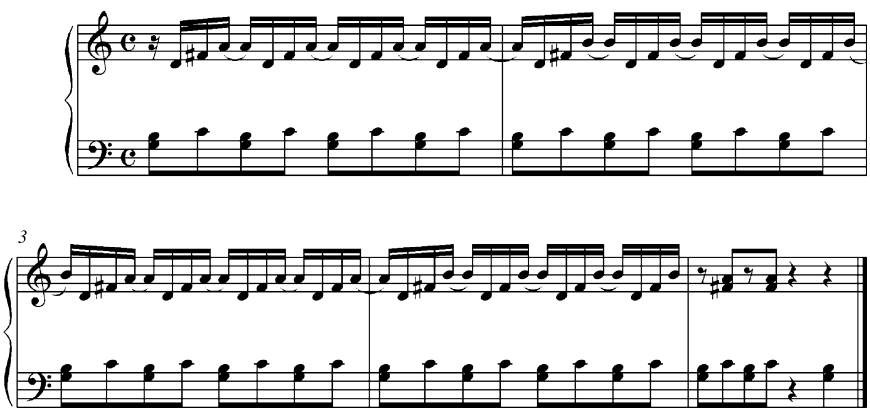

Fig. 1. Arpeggio in 16th notes played with the right hand accompanied by eighth notes on the left hand as played by our patient.

creativity and technical abilities (8). However, data on the creative ability of low-functioning ASD individuals are scanty. Our patient clearly shows that sameness and special skills may coexist in individuals with severe low-functioning ASD. We have described here the case of a non-verbal patient that shows a clear 'islet of ability' in the field of music playing. Music may represent an important opportunity to experience reciprocity, as well as to share emotions. Previous research in the field of psychiatric disorders has clearly shown that music seems to facilitate the creation of an emotional and a relational contact between patients and caregivers. In the case of our patient, it is worth noting that when she plays the piano, she seems to be engaged with music as a kind of non-verbal communication form.

Non-verbal patients with severe ASD have difficulties in expressing their emotions. However, mounting evidence has accrued that music could play an important role in improving communicative abilities in this patient group (9,10).

We conclude that it would be highly desiderable to actively seek unexpected abilities in non-verbal individuals with severe autism. In this regard, preliminary data have shown that the active engagement of these patients in creative activities such as music may represent a means to improve behavioural symptoms (10). Further controlled studies on this issue in non-verbal patients with severe forms of ASD are warranted.

Ilaria Bonoldi[1], Enzo Emanuele[1,2], Pierluigi Politi[1]; on behalf of the PALab—Pavia Autism Laboratory, Pavia, Italy (Stefania Ucelli di Nemi, Marianna Boso, Davide Broglia, Lara Mancini, Mara Marini, Beatrice Sommo, and Francesco Barale)

[1]Department of Applied and Psychobehavioural Sciences, University of Pavia, Pavia, Italy; and [2]Interdepartmental Center for Research in Molecular Medicine, University of Pavia, Pavia, Italy

Ilaria Bonoldi, Department of Applied and Psychobehavioural Sciences, University of Pavia, Via Bassi, 21, 27100 Pavia, Italy
Tel: +39 333 3574282;
Fax: +39 0382 528341;
E-mail: bonoldi_ilaria@hotmail.com

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https://doi.org/10.1111/j.1601-5215.2008.00336.x Published online by Cambridge University Press