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## Between inequality and mental health: the concept of vital poverty

The next congress of the Italian Society of Psychopathology, entitled “Connections, Cultures, Conflicts”, will be held in Rome from 21 to 24 February 2018 and will address various issues related to psychopathology, neuroscience, new clinical dimensions, integrated treatments. Moreover, a particular space will be reserved for the relationship between inequality, poverty and mental health.

A growing body of data are showing that the prevalence of mental health problems is greater in poorer areas <sup>1</sup> and that these areas had lower average recovery rates <sup>2</sup>. Mental health and poverty interact in a vicious circle <sup>3</sup>. There is an increased risk of mental illness among subjects who live in poor conditions and, simultaneously, an increased probability for those who are affected by a mental disorder to live in conditions of socio-economic disadvantage. Moreover, poverty has a greater impact on the degree of loneliness of adolescents or old age people <sup>4</sup>.

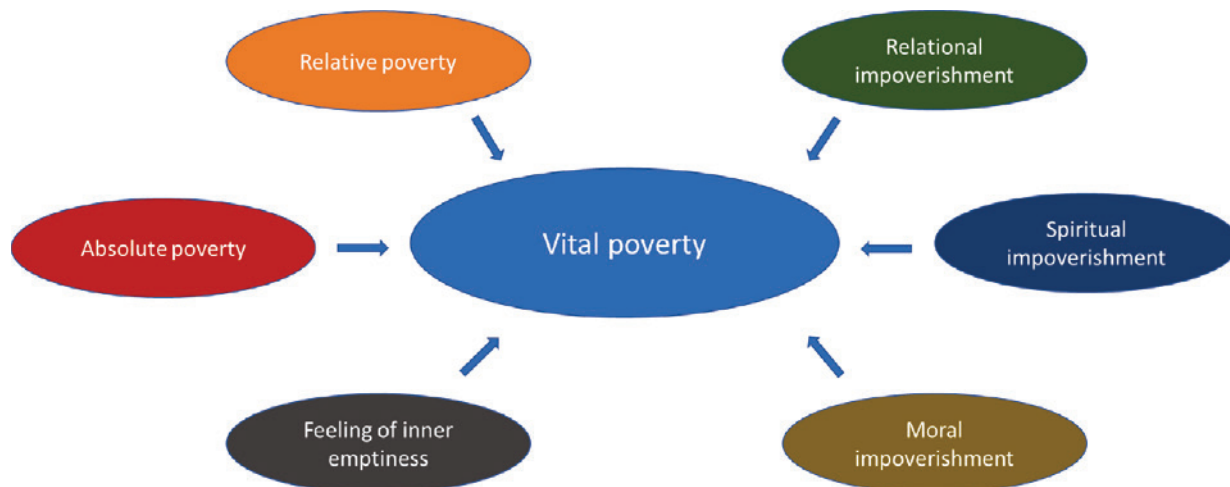
Interestingly, there are evidences that low income and material deprivation may affect the cognitive and brain development of children, resulting in an inverse correlation between low socio-economic status (SES) and different cognitive domains, such as language skills, cognitive control, memory and attention <sup>5</sup>. Much interestingly, an inverse relationship has been highlighted between cortical thickness and low SES <sup>6</sup>.

The World Health Organization <sup>7</sup> has produced a document titled “Breaking the vicious cycle of mental ill health and poverty”, which sums up some fundamental issues:

1. Mental disorders are twice more common among poor people. Data suggest that depression is 1,5-2 times more common among people with low income;
2. Persons who experience hunger or are deeply in debt are at a greater risk of having common mental disorders;
3. The prevalence of mental disorders is greater among unemployed or persons with a lower level of education;
4. People living in poor conditions have an increased risk of developing schizophrenia, and, *viceversa*, people with schizophrenia face a four-fold greater risk of being unemployed, of being divorced or of having lower levels of education.

The definition of SES and poverty is not univocal and it's still object of debate <sup>8</sup>. Beyond statistical definitions based on rigid criteria based on income and on the material quantification of the available personal resources (absolute poverty and relative poverty), there are new conceptions of poverty, based on less objective parameters, such as the cultural or emotional-values level.

In order to overcome the conceptual limits deriving from the mere economic definition of absolute or relative poverty, we have hypothesized a new concept, the vital poverty. With this expression we mean not only material deprivation, but a restriction of relational, emotional, value, moral and spiritual capacity. The vital poverty, although strongly conditioned by economic poverty, is a broader concept, which refers to an impoverishment of the qualities and general human resources of the individual, to a social involu-



**FIGURE 1.** *The concept of vital poverty.*

tion. This condition is characterized by a feeling of inner emptiness, a lack of meaning in one's life (Fig. 1).

The vital poverty touches the field of psychopathology. Poverty of values, relational and affective as well as economic impoverishment imply a fallout on the next generations, a poor quality of the couple relationship, a disinvestment in education and in an consolidated system of values, all factors that may contribute to psychopathological vulnerability<sup>9</sup>.

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## Implementation trial of a wellness self-management program for individuals with severe mental illness in an Italian Day Hospital setting: a pilot study

### Summary

#### Objectives

The Wellness Self-Management (WSM) is an adaptation and expansion of Illness Management and Recovery (IMR), an internationally recognized best practice. In order to validate the Italian version of WSM our goals included the translation from English to Italian of the WSM workbook and the implementation of an abbreviated WSM program in an Italian day hospital setting. *Methods:* In a randomized controlled trial 14 patients with a diagnosis of severe mental illness were recruited and randomly assigned to two groups. Seven individuals received an abbreviated version of WSM, while the controls received Treatment as Usual. Groups did not differ for age, education, cognitive functioning and symptomatology. All patients received weekly planned treatment in the day hospital setting. After treatment, group differences on change scores were tested using ANOVA.

#### Results

Compared to controls, at immediate post-intervention, WSM participants reported significant improvement in processing speed, psychopathology, neurocognitive and personal resources and real-life functioning.

#### Conclusions

These results offer promising preliminary evidence that the use of an abbreviated Italian translation of the WSM workbook provides an effective complement to current mental health treatment.

#### Key words

Self-Management • Illness management • Recovery • Psychiatric rehabilitation

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### Introduction

Despite the existence of adequate, evidence-based treatments for adults with serious mental illness, these practices are rarely implemented and sustained in real-world settings <sup>1</sup>. Recently there have been increased efforts to explore new strategies to bring recovery-oriented best practices to real-world settings <sup>2-6</sup>. One example in the United States was the Substance Abuse and Mental Health Services Administration (SAMHSA) national best practices implementation project initiated in 2001 with eight States <sup>7</sup>.

In 2002-2005, the New York State (NYS) Office of Mental Health (OMH) took part in this project. One practice selected by OMH to implement in NYS was Illness Management and Recovery (IMR) <sup>8</sup> and stakeholders reported that IMR added value to the quality of services. Stakeholders also proposed ways in which IMR could be expanded and adapted to increase its widespread usability and sustainability, especially in groups. Subse-

quently, a NYS operated facility and ten NYC-based behavioral health agencies field tested and evaluated adaptations to IMR based on stakeholders' observations and experiences. Along with input from a consumer advocacy group and an expert in cultural adaptations, this led to significant adaptations and additions to the practice and ultimately to a new name: Wellness Self-Management (WSM) <sup>4</sup>.

The WSM curriculum was expanded to 57 topic areas that provided information and strategies designed to assist individuals to better understand and manage symptoms, understand the importance of physical health, cope more effectively with stress, engage in wellness supporting activities, build confidence and inspire hope for recovery. The expanded program was also formatted to align with a practical group facilitation model.

Subsequently, WSM was implemented in over 100 behavioral health agencies across NYS and the findings were encouraging: participants and WSM group leaders reported significant progress with respect to consumer identified goal areas. WSM groups were well attended, group leaders generally implemented the group with fidelity and most practitioners employed the workbook at a satisfactory level <sup>8</sup>.

Although the WSM workbook has been translated into Spanish, Chinese and Korean, an Italian version was not available.

Our interest in developing and implementing an Italian version of WSM is due to its focus on self-management of symptoms and wellness, content of the lessons, and initial promising findings <sup>7</sup>. Another important consideration is the user-friendly nature of WSM for practitioners and mental health consumers due to the very structured, detailed, yet flexible workbook based on the principles of adult education.

## Objectives

In order to validate the Italian version of WSM our goals included the translation from English to Italian of the WSM workbook and the implementation of an abbreviated WSM program in an Italian day hospital setting. The abbreviated program represented a subset of lessons that most closely aligned with high priority client problem areas and the outcome variables under study.

## Materials and methods

### Subjects

Fourteen patients were recruited and randomly assigned to two groups.

Group 1, which received WSM, consisted of 7 outpatients (3 males and 4 females) with average age of 37 years (SD = 13.2) and average schooling of 12.7 years

(SD = 4.1). Group 2, which received Treatment as Usual (TAU), consisted of 7 outpatients (2 males and 5 females) with average age of 40 years (SD = 13.6) and average schooling of 13.3 years (SD = 3.6).

Inclusion criteria were: (1) between 18 and 65 years of age; (2) diagnosis of severe mental illness-depressive syndromes with psychotic features, bipolar disorder with psychotic features, schizophrenic syndromes; (3) attending day hospital treatment, and (4) capacity to provide informed consent. Exclusion criteria were: (1) a primary diagnosis of mental retardation; (2) dementia or organic brain disorders, and (3) moderate or severe cognitive impairment.

All patients received weekly planned treatment in the day hospital setting, were regularly visited by the staff psychiatrist and continued their pharmacotherapy.

### Implementation of the study

The study included the following phases: 1) the translation of the entire Wellness Self-Management workbook made by a team coordinated by an expert professor in psychiatric rehabilitation of the Second University of Naples and included two psychiatrists and six psychiatric rehabilitation technicians. During this phase, in addition to the literal translation from English into Italian, it was carefully adapted to the socio-cultural context in its use of terminology and content, to ensure an optimal Italian version; 2) practitioner training for WSM treatment; 3) baseline assessment of psychopathology, neurocognitive functions, disability, self-esteem, resilience, recovery style, participation and involvement in care; 4) the abbreviated WSM intervention which consisted of one weekly session of two hours for 4 weeks, according to a group format, with 3-4 patients, a psychiatrist and a psychiatric rehabilitation technician; 5) post treatment evaluation.

### Practitioner training

Practitioner training consisted of six lessons: main objectives of WSM treatment (lesson 1), WSM implementation (lesson 2), workbook topics to be covered (lesson 3), and practice in simulated treatment (lessons 4-6). After the training, the implementation of the intervention was led by a psychiatrist and a psychiatric rehabilitation technician at the Division of Psychiatry of the University Hospital "San Giovanni di Dio e Ruggi d'Aragona" of Salerno.

### Assessment

All patients were assessed at baseline with the following tools:

#### Neurocognitive assessment

- **The Trail Making Test Part A (TMT-A)**, a tool consisting of 25 circles distributed over a sheet of paper and the circles are numbered 1-25. The patient



should draw lines to connect the numbers in ascending order. The task must be completed in 300 seconds<sup>9</sup>.

- **The Symbol Coding (BACS SC)** consists of digit-symbol pairs (e.g. 1/-, 2/+ ... 7/Δ, 8/X, 9/=) followed by a list of digits. Under each digit the subject writes down the corresponding symbol as fast as possible. The number of correct symbols within the allotted time is measured. The time to complete the task is 90 seconds<sup>9</sup>.
- **The Category fluency**, a neuropsychological test in which participants have to say as many words as possible from the category “animals” in a given time (60 seconds)<sup>9</sup>.

### Psychopathology

- **Positive And Negative Syndrome Scale (PANSS)**, was used to rate symptom severity<sup>10</sup>. Scores for the dimensions “disorganization” and “positive symptoms” were calculated based on the consensus 5-factor solution proposed by Wallwork et al.<sup>11</sup>.
- Negative symptomatology were assessed by **Brief Negative Symptom Scale (BNSS)** which includes 13 items, rated from 0 (normal) to 6 (most impaired), and five negative symptoms domains: anhedonia, asociality, avolition, blunted affect and alogia. The Italian version of the scale was validated as part of the Italian Network for Research on Psychoses activities<sup>12</sup>. In line with previous research<sup>13 14</sup> domains evaluated by the scale loaded on two factors: “avolition”, consisting of anhedonia, asociality and avolition, and “poor emotional expression”, including blunted affect and alogia.

### Resources of the person

- **The Self-Esteem Rating Scale (SERS)** is a 40-item self-rating scale with scores in the range -120 to 120, with higher scores denoting higher and more positive self-esteem<sup>15</sup>.
- To evaluate the resilience has been used the **Resilience Scale for Adult (RSA)**, a self-administered scale consisting of 33 items that examine intra- and inter-personal protective factors thought to facilitate adaptation when facing psychosocial adversity. Items are organized in six factors: perception of self, perception of the future, structured style, social competence, family cohesion, and social resources<sup>16</sup>.
- **Recovery Style Questionnaire (RSQ)** has been used to evaluate the impact of recovery style on the prognosis and on the involvement with psychiatric services. The RSQ identifies two main recovery styles: “sealing-over,” in which the subject minimizes and tends to remove the recent psychotic episode, and “integration,” in which there is a continuity between

psychotic and pre/post-psychotic experiences<sup>17</sup>.

- **Patient Activation Measure (PAM-13)**, for the level of active participation in the care and management of their own health, consists of 13 items measuring patients’ self-reported knowledge, motivation, and skills for health management<sup>18</sup>.

### Functioning

- The evaluation of the level of disability has been made by the **WHO Disability Assessment Schedule 2.0 (WHODAS 2.0)** using the Complex scoring, a more fine-grained analyses possible, according to the suggestion of the authors<sup>19</sup>.
- **Services Engagement Scale (SES)**, an instrument including 14 items, rated on a 4-point Likert scale (with higher scores reflecting greater levels of difficulty engaging with services), was used to explore patients’ relationship with mental health services<sup>20</sup>.

### Level of satisfaction

To evaluate the level of satisfaction in patients, the **Client Satisfaction Questionnaire-8 (CSQ-8)**, was employed with scores ranging between 8 and 32, with higher score indicating greater satisfaction<sup>21</sup>.

### The wellness self-management treatment

To start the implementation of the WSM program in Italy we organized two groups, one group composed of 3 patients and a second with 4 patients. Both groups were facilitated by a psychiatrist and a psychiatric rehabilitation technician. The WSM intervention was divided into four weekly meetings of two hours, that included selected lessons based on the goals of the participants. For the first meeting, we selected the following lessons: “What Is Your Role in the Program?”, “Understanding Positive and Negative Thinking”, “Getting to Know Each Other” and “Understanding Barriers that Get in the Way of Achieving Goals”. We used these lessons to engage patients in discussing the importance of active participation in treatment, strengths and positive thinking and how the group setting helps people to obtain peer support and share personally meaningful topics. For the second meeting, after a brief discussion about the lessons of the previous session, we chose “Visions of Recovery”, “What Helps Recovery?”, “What Hinders Recovery?” and “Choosing Your Own Recovery Strategies”. During these lessons we introduced the recovery concept, different recovery strategies and their effectiveness. For the third meeting, after a brief review of the previous lesson’s main points, we selected: “Symptoms of Mental Illness”, “Understanding the Causes of Mental Illness”, and “Coping with the Stigma of Having a Mental Illness Diagnosis”. These topic areas focused on increasing each patients understanding of



**TABLE I. Baseline assessments in the two groups.**

	WSM	TAU	P
Age	37 ± 13.2	40 ± 13.6	N.S.
Education	12.7 ± 4.1	13.3 ± 3.7	N.S.
Sex (% males)	42	28	
Marital status (% married)	14	42	
Processing speed (mean score)	30.8	35.88	N.S.
PANSS Positive	7.71 ± 3.64	10 ± 5.18	N.S.
PANSS Disorganization	9.43 ± 3.2	9.67 ± 2.58	N.S.
BNSS Expressive deficit	20.43 ± 8.77	23.16 ± 11.3	N.S.
BNSS Avolition	30.29 ± 14.1	25.5 ± 12.76	N.S.

WSM: Wellness Self Management; TAU: Treatment as usual; PANSS: Positive And Negative Syndrome Scale; BNSS: Brief Negative Symptom Scale

psychiatric symptomatology and its causes, the stress-vulnerability model, stigma and its impact in a patient's life. For the final meeting, we selected: "Identifying Your Personal Signs of Stress", "How to Prevent Stress in the First Place" and "Coping with Stress: What Works? What Doesn't?". The main goal of these lessons was to engage clients in recognizing personal signs of a crisis and discussing ways to prevent a relapse by learning effective coping strategies.

All subjects receiving WSM continued to receive pharmacotherapy in a day hospital setting.

#### Treatment as usual

People randomized to TAU received pharmacotherapy in a day hospital setting (as did the WSM group) and were involved in leisure activities (Ceramics, Music Workshops, Theater Workshops, Sport) or psychotherapy once a week.

#### Statistical data analysis

For all neurocognitive tests (TMT, Symbol-coding sub-

test of BACS and tests of category verbal fluency) T-scores were calculated by the MCCB Computer Scoring Program for the Italian version of MCCB.

As to psychopathological indices the PANSS scores for positive dimension (sum of the scores on Delusions, Hallucinatory Behavior, Grandiosity, Unusual thought content) and disorganization (sum of the scores on Conceptual Disorganization, Poor Attention and Difficulty in Abstraction) were calculated according to Wallwork et al. <sup>11</sup>, while the negative dimensions, "Avolition" (anhedonia, asociality and avolition) and "Expressive deficit" (blunted affect and alogia) were calculated from BNSS scores, according to previously published factor analyses <sup>12-14</sup>. For the functioning evaluation, WHO DAS 2.0 scoring was calculated using the complex score according to Ustun et al. <sup>19</sup>.

Group differences on pre-post change scores were tested using one-way ANOVA with group as between factor. For all statistical tests the level of significance was set at  $p < 0.05$ . As this was an explorative study on the WSM intervention a correction for multiple comparisons was not applied.

## Results

Baseline demographic and clinical characteristics are reported in Table I.

At the baseline, there was no significant difference between groups in all analyzed variables.

#### Effects on neurocognition

After one month of treatment, WSM patients improved significantly more than TAU patients in verbal fluency. No difference was found for the other neuropsychological variables as shown in Table II.

#### Effects on psychopathology

A significant difference between the two groups was observed in PANSS disorganization domain, in Expressive deficit BNSS factor and Avolition, with WSM improving significantly more than TAU group. No difference was found for other psychopathological dimensions (Table III).

#### Effects on resources of the person

Recovery Style Questionnaire (RSQ) results show that

**TABLE II. Neurocognition (Processing speed) pre and post intervention scores in the two groups.**

	WSM		TAU		F	P
	Pre	Post	Pre	Post		
TMT	46.28 ± 11.54	50.57 ± 9.18	37.66 ± 7.63	39.83 ± 8.13	1.71	0.23
Symbol coding (BACS)	35.28 ± 6.04	39.28 ± 5.52	33.16 ± 10.1	35.5 ± 8.5	1.66	0.22
Verbal fluency	34.85 ± 2.73	42.85 ± 2.79	36.83 ± 11.37	41 ± 7.2	4.49	0.22

WSM: Wellness Self-Management; TAU: Treatment As Usual; TMT: Trial Making Test; BACS: Brief Assessment of Cognition in Schizophrenia

**TABLE III.** Psychopathology pre and post intervention scores.

	WSM		TAU		F	P
	Pre	Post	Pre	Post		
PANSS Positive	7.71 ± 3.64	4.86 ± 0.9	10 ± 5.18	8.17 ± 3.71	0.57	0.47
PANSS Disorganization	9.43 ± 3.2	5.14 ± 1.46	9.67 ± 2.58	7.67 ± 2.42	7.93	≤ .002
BNSS Expressive deficit	20.43 ± 8.77	3.29 ± 1.98	23.16 ± 11.3	16 ± 8.37	11.3	≤ .001
BNSS Avolition	30.28 ± 14.1	6.71 ± 6.68	25.5 ± 12.75	19.5 ± 9.99	12.7	≤ .0005

WSM: Wellness Self-Management; TAU: Treatment As Usual; PANSS: Positive And Negative Syndrome Scale; BNSS: Brief Negative Symptom Scale

**TABLE IV.** Pre and post intervention scores on personal resource scales in the two groups.

	WSM		TAU		F	P
	Pre	Post	Pre	Post		
SERS	-2.71 ± 43.4	56.14 ± 35.89	5.71 ± 33.98	26.67 ± 26.9	5.06	≤ .005
Self Esteem (RSA)	14.29 ± 3.81	23.14 ± 3.8	15.83 ± 6.97	17.33 ± 6.71	5.06	≤ .001
PAM	36.57 ± 6.85	50 ± 1.91	34 ± 3.69	40.83 ± 7.44	3.84	0.076

WSM: Wellness Self-Management; TAU: Treatment As Usual; SERS: Self-esteem Rating Scale; RSA: Resilience Scale for Adult; PAM: Patient Activation Measure

**TABLE V.** Pre and post intervention scores on functioning and services engagement.

	WSM		TAU		F	P
	Pre	Post	Pre	Post		
WHO DAS 2.0 total	40.9 ± 19.98	16.4 ± 11.25	41.29 ± 14.11	29.44 ± 11.9	7.35	≤ .005
WHO Cognition	41.67 ± 24.89	14.29 ± 9.58	37.5 ± 22.82	28.07 ± 19.6	6.03	≤ .005
WHO Mobility	17.14 ± 23.95	8.57 ± 18.64	38.33 ± 27.5	30.83 ± 24.17	0.86	0.77
WHO Self-Care	33.04 ± 34.56	16.96 ± 19.37	32.29 ± 22.16	20.86 ± 15.53	1.95	0.67
WHO Interaction	50.71 ± 24.57	26.43 ± 21.16	54.17 ± 31.69	41.67 ± 24.63	3.92	0.073
WHO Life activities	34.98 ± 26.02	8.84 ± 9.35	32.82 ± 18.62	48.75 ± 10	7.06	≤ .005
WHO Participation	57.15 ± 9.84	19.7 ± 9.82	52.61 ± 6.68	41.65 ± 3.56	9.98	≤ .001
SES	14.29 ± 6.82	1.43 ± 1.51	7.57 ± 3.5	4.67 ± 2.58	12.95	≤ .001

WSM: Wellness Self-Management; TAU: Treatment As Usual; WHO DAS 2.0: WHO Disability Assessment Schedule 2.0; SES: Services Engagement Scale

100% of WSM patients switched from an intermediate recovery style to an integrate one, while only 14% of TAU patients switched from an intermediate recovery style to an integrate one.

Furthermore, WSM group improved significantly more than TAU group on self-esteem RSA domain and in SERS. There was no difference in patient activation measure (Table IV).

#### Effects on functioning

WSM patients improved significantly more than TAU subjects in terms of psychosocial functioning. In fact, participants of WSM group improved significantly more in WHO DAS global score. Especially, a significant effect has emerged for the WHO DAS dimensions cognition, life activities and participation as illustrated in Table V.

Furthermore, WSM participants improved significantly more than TAU on services engagement measured by the SES (Table V).

#### Level of satisfaction

The average score reported on CSQ was 29 (SD 1.8) indicating high satisfaction.

#### Drop-outs

WSM group hasn't had any drop-out, while TAU group has had 1 drop-out.

#### Discussion and conclusions

The study represents the first attempt at using WSM in Italy and it is also the first attempt to assess the effec-

tiveness of WSM on neurocognition, psychopathology, personal resources and functioning.

The WSM program successfully engaged patients as demonstrated by no dropouts and a high level of satisfaction. The most logical comparison could be made between WSM and studies that showed the feasibility of IMR which reported levels of dropouts, on average, around 24%<sup>22</sup>. The higher level of dropouts for IMR may be due to the length of the program (from 6 to 12 months). Due to the differing lengths of the two interventions and the small sample size of the present study, we cannot directly compare the drop-out rates. However, this pilot study suggests that the Italian version of WSM is well received and suitable in a day-hospital setting. The efficacy of the Italian version of WSM was demonstrated in that most of the outcome parameters under study (neurocognition, psychopathology, resources of the person, functioning) improved with time. Compared to TAU, WSM is particularly effective in improving self-esteem, service engagement, neurocognition, negative symptoms and disorganization, resulting in a significant improvement of functioning in everyday life. These results are consistent with studies in the literature regarding IMR that found positive effects on psychiatric symptoms<sup>23,24</sup>. The current study suggests additional benefits related to improved neurocognition, self-esteem and service engagement.

In addition, our study took into account the effectiveness of WSM on variables such as neurocognition and real-world functioning. Our preliminary data show that WSM can improve cognitive functioning of participants with respect to TAU. This is not an unexpected result, in fact research suggests that enriched psychosocial settings and behavioral interventions may improve neurocognitive functioning<sup>25,26</sup>. Therefore, the relevance of our findings is related to several studies implicating that neurocognitive dysfunction is a core feature of severe mental illness, relatively independent of symptomatic state<sup>27-29</sup>. Neurocognitive dysfunction is considered a better predictor of functional outcome than any other

measure of psychopathology<sup>30-32</sup>, and may prevent functional recovery and interfere with the clients' ability to fully benefit from psychosocial interventions<sup>33-35</sup>. The data shows that participants in the WSM group demonstrated improved functioning in daily life after treatment, as compared with the TAU group. This finding is of particular importance as the TAU included individual psychotherapy which was highly structured and personalized. It is possible that the WSM focus on self-management of symptoms and wellness promotes active participation in treatment. This is also suggested by the significant better engagement with services observed for this group with respect to the TAU group.

Lastly, it is known that IMR has resulted in lower hospitalization rates post-treatment of the participants<sup>36,37</sup>; this variable was not investigated in this study due to the absence of a follow-up and small sample size, but it is possible that the improvement in real-world functioning, resources of the person, psychopathological indices and neurocognition might have a favorable impact on future hospitalization<sup>22</sup>. This hypothesis has to be tested in future studies.

These preliminary results suggest the effectiveness of WSM in encouraging the recovery of patients with severe mental illness, but the absence of a follow-up and the small number of subjects does not allow a determination of the duration and the generalization of the effects.

In conclusion, considering the high level of satisfaction of participants and practitioners with WSM treatment and its significant benefits for patients, we note that the implementation of the WSM treatment in the first Italian setting is feasible and promotes meaningful clinical outcomes. Our approach – using an abbreviated version of the WSM workbook in four group sessions over one month in a day hospital – seems to be sufficient to engage and benefit patients. Future research would benefit by expanding the sample size and planning a follow-up.

## Conflict of interest

None.

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## Internet use among Italian students: usefulness of Internet Addiction Test

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### Summary

*In the last years, scientific interest has grown towards new types of addiction, especially the Internet Addiction (IA). The IA is characterized by the continuous and compulsive use of the internet, causing significant consequences to everyday life. The IA is not included in the latest Diagnostic and Statistical Manual of Mental Disorders (DSM-5).*

*An excessive use of the internet can have major consequences: loss of sleep time, worse working or school outcomes, progressive detachment from real relationships, isolation, loss of interest and irritability. The most widely used instrument to assess IA is the Internet Addiction Test (IAT), introduced by Kimberly Young; however, different factor structures were reported for the instrument.*

*The aim of this study was to analyse the prevalence of IA among 200 Italian university students (F = 100, M = 100; aged 19-40) using the IAT. Our findings indicate that the 9% (18 subjects) has a moderate risk to develop the IA, but no subjects obtained a test score between 80 and 100. The correct use of internet is present in the 23% of the sample (46 subjects), whereas the 68% (136 subjects) spend great amounts of time online. The collected data were analysed using the Italian two-factor structure model, according to Servidio et al. Our results confirm higher levels of problematic internet use in male than in female subjects and among young compared to older people. According to our results, however, the youth age is stronger than male gender in determining the level of problematic internet use. In addition, higher rates of problematic Internet use are present in young girls compared to old girls, while in male subjects the problematic internet use is independent from youth age or adulthood. As far as we are aware no previous studies analysed the relationship between the IAT factors (interpersonal, emotional and obsessive conflict, online time management and compromised personal wellbeing), age and gender.*

### Key words

Internet Addiction • Internet Addiction Test • IA • IAT • Addiction

### Introduction

In the last years, scientific interest has grown towards new types of addiction, especially the Internet Addiction (IA). Nowadays, the Internet use has grown globally and it is a founding element to carry out a huge number of activities: work, study, research, social, gaming etc.<sup>1</sup>. It is available in any time and in any place.

The IA is characterised by the continuous and compulsive use of the internet, causing significant consequences to everyday life<sup>2</sup>. The IA is not included in the latest Diagnostic and Statistical Manual of Mental Disorders (DSM-5)<sup>3</sup>.

An excessive use of the internet can have major consequences: loss of sleep time, worse working or school outcomes, progressive detachment from real relationships privileging virtual ones, isolation, loss of interest, irritability, eating disorders and incorrect postures<sup>4,5</sup>. The IA is, also, associated with several psychiatric disorders such as substance use disorder, attention-deficit hyperactivity disorder, depression, hostility, and social anxiety disorder<sup>6</sup>.

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Although the Internet use doesn't appear among the causes of the social retirement, it is present in most young people and it can be assumed that it contributes to favouring and maintaining this condition, suspending the perception of the time spent and ensuring a minimum but necessary relationship with the outside <sup>7 8</sup>.

The IA prevalence is ranged between 0.3% and 38% <sup>9</sup>. Recent studies reported that 12.4% of adolescents use internet in an addictive way and other studies estimated that 3-13% of all the university students are internet abusers <sup>10 11</sup>. It seems that those most at risk for developing this addiction are people aged 15 to 40 with psychological or psychiatric problems <sup>12 13</sup>.

A wide range of diagnostic tools have been developed and used in previous researches examining pathological Internet use; however, most of the questionnaires used to assess potentially problematic or addictive behaviours have been based on national surveys or ad hoc questionnaires that have not been previously validated. The most widely used and validated instrument is the one introduced by Kimberly Young (Internet Addiction Test, IAT).

The IAT was originally developed as a single-scale instrument, most studies, based on the IAT, used the total-scale score and its corresponding cut-offs. Some researches based on the IAT reported significant inter-factor correlations, implying the possibility of a unidimensional scale that would justify the use of the total score to assess the Internet addiction <sup>14 15</sup>. Other studies, however, did not report such correlations <sup>16</sup>.

The noticeable inconsistency of various studies related to the factor structure, in fact, is not always a result of the different scales used. Even in studies where the IAT was used, different factor structures were reported. The growing knowledge about the IA, it is leading to more complex and multidimensional conceptualizations <sup>14</sup>.

The aim of the current study is to analyse the prevalence of IA among Italian university students using the IAT applying the Italian 2-factor structure model, according to Servidio et al. <sup>17</sup> and to analyse the relationship between the IAT factors (interpersonal, emotional and obsessive conflict, online time management and compromised personal wellbeing), age and gender.

## Materials and methods

The research was conducted on a sample of 200 undergraduate and graduate students (F = 100, M = 100; aged 19-40) at the University of L'Aquila. Informed consent was obtained from each student. The confidentiality of all the information provided was guaranteed.

All subjects were invited to answer demographic questions and to take the IAT.

The IAT is the most common tool to assess mild, moderate, and severe levels of IA. It is formulated to assess

the level of psychopathological risk associated with the internet use. The subject has to answer 20 multiple-choice questions giving a score on this scale: 1 = never; 2 = rarely; 3 = sometimes; 4 = often; 5 = always. Questions are aimed to identify those who make excessive internet use until they overlook the family, work, study, and social problems, insomnia, anxiety, psychomotor agitation, depression etc. Only item 6 (Q2 on IAT scale) – "How often do you neglect course- work/assignments to spend more time online?" was modified into "How often do you neglect your course/home work to spend more time online?". We used the Italian validated version of the IAT <sup>18-22</sup>.

The presence of IA was evaluated using the method introduced by Fisoun et al. <sup>23</sup> according to which a total IAT score between 0 and 19 points is considered below the average, score between 20 and 49 points suggests an average use of the Internet, score between 50 and 79 points is above the average and indicates that the person already has several issues due to the Internet and should reflect on the impact these problems have on his life and at last, score between 80 and 100 suggests that the use of the Internet is intense and it is causing considerable problems.

All the statistical analyses were performed with IBM SPSS Statistics for Windows, Version 20.0. (IBM Corp, Armonk, NY, USA).

The sample was divided in subgroups, according to these variables: gender [Male/Female (M/F)], occupation [Non-Worker Students (NWS)/Worker Students (WS)] and age ranges (18-25 years/26-46 years).

Student's t-test was used to show possible differences in total IAT scores and factors mean values both in the total sample and in each group. Fisher's test or  $\chi^2$  test was used to show possible differences in the score of each item.

The sample was divided into subgroups, based on the level of Internet use. The  $\chi^2$  test was used to highlight possible differences in the distribution of gender, occupation and age ranges. The Mann-Whitney test was used for the variable age. Bivariate correlations were performed using Pearson or Spearman rho correlation coefficient to highlight the possible association between age, total IAT score and factors mean values both in the total sample and in each subgroup. The homogeneity of the two groups, relative to age, gender, occupation and age range, was verified through the Mann-Whitney test and the  $\chi^2$  test. The agreed statistical significance was  $p \leq 0.05$ .

## Results

The distribution of each subgroup in the first three levels of the Internet use, according to Fisoun et al., is the following: in the age group 18-25 years 15 students (12.9%) total IAT score between 0-19 points, 88 (75.9%)



between 20-49 points and 13 (11.2%) between 50-79 points, while in the age group 26-46 years 31 students (36.9%) obtained total IAT score between 0-19 points, 48 (57.1%) between 20-49 points and 5 (6%) between 50-79 points. 23 male students (23%) scored between 0-19 points, 65 (65%) between 20-49 and 12 (12%) between 50-79 points, while 23 (23%) female students scored between 0-19 points, 71 (71%) between 20-49 and 6(6%) between 50-79 points.

No one obtained a test score between 80 and 100 points corresponding to “the use of the Internet is intense and is causing the person considerable problems”.

No statistically significant difference was detected between women and men relative to these variables: age [ $F = 25.47$  vs  $M = 25.38$ ;  $U = 4.856$ ,  $z = -0.352$ ,  $p = 0.725$ ], occupation [ $F$  (NWS = 64/WS = 36) vs  $M$  (NWS = 60/WS = 40);  $\chi^2 = 0,340$ ,  $p = 0.560$ ] and age range [ $F$  (18-25 = 61/26-46 = 39) vs  $M$  (18-25 = 56/26-46 = 44);  $\chi^2 = 0,515$ ,  $p = 0.473$ ].

A statistically significant difference was observed between NWS and WS relative to the age ( $p < 0.001$ ) and age range ( $p < 0.001$ ).

Male subjects obtained statistically higher scores than female in the total IAT scores [ $F = 36.36$  vs  $M = 38.98$ ;  $t = -2.027$ ;  $p = 0.044$ ; (sized effect = 0.287)]. Subjects in the age range of 18-25 obtained higher scores, compared to those aged 26-46 [18-25 = 38.97 vs 26-45 = 35.84;  $t = 2.390$ ;  $p = 0.018$ ; (sized effect = 0.34)]. Statistically significant differences were highlighted between M and F groups in the answers to the following items: Item 2 (do you neglect the household chores to stay connected more time?) [ $M$  (never = 22, rarely = 31, sometimes = 25, often = 22, always = 0)/ $F$  (never = 19, rarely = 26, sometimes = 43, often = 10, always = 2);  $p = 0.014$ ]; Item 19 (do you choose to spend more time online rather than going out with others?) [ $M$  (never = 68, rarely = 25, sometimes = 6, often = 1, always = 0)/ $F$  (never = 84, rarely = 13, sometimes = 3, often = 0, always = 0);  $p = 0.038$ ]; Item 20 (Do you feel depressed, irritable or nervous when you are not connected, while you are fine when you are back in front of the computer?) [ $M$  (never = 78, rarely = 18, sometimes = 3, often = 1, always = 0)/ $F$  (never = 92, rarely = 8, sometimes = 0, often = 0, always = 0);  $p = 0.011$ ].

Moreover, our results highlighted statistically significant differences between subjects aged 18-25 compared to those aged 26-46 in the answers to the following items: Item 5 (does people around you complain about the amount of time to pass on line?) [18-25 (never = 37, rarely = 45, sometimes = 25, often = 10, always = 0)/26-46 (never = 25, rarely = 24, sometimes = 19, often = 2, always = 3);  $p = 0.039$ ]; Item 6 (do your studies negatively affect the amount of time you spend online?) [18-25 (never = 34, rarely = 37, sometimes = 37, often = 9,

always = 0)/26-46 (never = 33, rarely = 35, sometimes = 10, often = 5, always = 0);  $p = 0.010$ ]; Item 7 (do you check your email before doing something else important?) [18-25 (never = 22, rarely = 16, sometimes = 42, often = 27, always = 10)/26-46 (never = 11, rarely = 18, sometimes = 18, often = 14, always = 22);  $p = 0.002$ ]; Item 8 (are your job yield or your productivity negatively affected by the Internet?) [18-25 (never = 43, rarely = 42, sometimes = 25, often = 7, always = 0)/26-46 (never = 38, rarely = 36, sometimes = 7, often = 0, always = 2);  $p = 0.003$ ]; Item 12 (do you fear that life without internet is boring, empty and without joyous? [18-25 (never = 62, rarely = 38, sometimes = 12, often = 5, always = 0)/ 26-46 (never = 61, rarely = 18, sometimes = 0, often = 3, always = 1);  $p = 0.001$ ].

In the total sample, a statistically significant trend was highlighted in the correlation analysis between age and total IAT score (Spearman rho = -0.135;  $p = 0.056$ ).

A negative correlation was highlighted, but only in F subjects, between the age and the total IAT score (Spearman's rho = -0.232;  $p = 0.020$ ).

There is no statistically significant difference of this distribution between males and females ( $\chi^2 = 2.265$ ;  $p = 0.322$ ), on the other hand the difference between < 25 and 26-40 age groups is statistically significant ( $\chi^2 = 16.180$ ;  $p = 0.000$ ).

Numerous studies have dealt with the analysis of the IAT factor structure with very heterogeneous results.

These variations may be explained by differences in language versions (culture or translation), population studied (online sample or college students), and methods of factor extraction.

In the last years Italian studies have proposed some examples of 2-factors structure.

We used the factor structure model by Servidio et al. In this model, the finding of 2 factors is in line with common elements in the instruments measuring internet addiction: Factor 1 encompasses 11 items and indicates the subject's motivation for using internet in terms of “interpersonal, emotional and obsessive conflict as a result of internet use.” Factor 2 involves 7 items about the role of “online time management and compromised personal wellbeing”.

The mean values of the factor score in each different group of the sample are reported in Table I.

In Table II there are the differences between groups and the coefficients of correlation between the variables analyzed with their significance. (Tab. II)

## Discussion

Our findings indicate that in our sample the 9% (18 subjects) has a moderate risk to develop the IA, but no subjects obtained a test score between 80 and 100. The correct use of the internet is present in the 23% of the

**TABLE I.** Mean values with standard deviation of factor score in each different group and in total sample.

Age groups	Factors	M	F	Total sample (M + F)
< 25 years	F1 – interpersonal, emotional and obsessive conflict	17.745 ± 5.545	16.442 ± 4.353	17.060 ± 4.975
	F2 – online time management and compromised personal wellbeing	17.309 ± 3.985	16, 672 ± 4.628	16.974 ± 4.328
25-40 years	F1 – interpersonal, emotional and obsessive conflict	16, 155 ± 5.838	14.589 ± 3.431	15.428 ± 4.907
	F2 – online time management and compromised personal wellbeing	15.977 ± 4.668	14.153 ± 4.094	15.131 ± 4.479
Total sample	F1 – interpersonal, emotional and obsessive conflict	17.030 ± 5.705	15.720 ± 4.102	16.375 ± 4.999
	F2 – online time management and compromised personal wellbeing	16.710 ± 4.335	15.690 ± 4.576	16.200 ± 4.475

**TABLE II.** Differences between groups and coefficients of correlation between the variables with their significance.

Variables	F1 interpersonal, emotional and obsessive conflict	F2 online time management and compromised personal wellbeing
Gender	t = 1.864 p = 0.064	t = 1.618 p = 0.107
Age	r = - 0.095 p = 0.182	r = - 0.164 p = 0.020
F1		r = 0.610 p = 0.000
Age groups	t = 2.302 p = 0.022	t = 2.929 p = 0.004
Age groups in male sample	t = 1.393 p = 0.167	t = 1.538 p = 0.127
Age groups in female sample	t = 2.248 p = 0.027	t = 2.849 p = 0.007

sample (46 subjects), whereas the 68% (136 subjects) spend great amounts of time online.

Our results are in line with the literature. Taranto et al.<sup>24</sup> found that the IA prevalence, among a sample of high school students, was 4.7%. In the study of Bianchini et al.<sup>25</sup> the 23% of the total sample showed an internet problematic usage and 8 subjects (the 0.7% of the total sample) were internet abusers. A previous study conducted among medical students of the Turkish University showed an IA prevalence of 9.1%<sup>26</sup>.

According to our findings male subjects reach higher total IAT scores than the female subjects. The subgroup M obtained statistically higher scores than the subgroup F; in the subgroup of subjects aged 18-25 the differences are significant. Differences in the single items pointed out that the 43% of female subjects occasionally neglect housework to stay online, while the 22% of males do so

often; when asked: “Do you choose to spend more time online instead of going out with others”, the 84% of females and the 68% of males answered “never”, while the 25% of males chose “rarely”; questioning about feeling irritable or depressed when offline, the 92% of females answered “never” and the 8% chose “rarely”, while 78% of male subjects answered “never” and the 18% said “seldom”.

No differences have been observed in the distribution of F and M students in the three levels of Internet problematic use, considering the factors mean values. Significant differences have been observed in all the variables analyzed between the subjects aged 18-25 and the subjects aged 26-40: younger subjects obtain higher total IAT scores. Some significant differences were found between the 18-25 subgroup and the 26-46 one for items 5, 6, 7, 8 and 12, highlighting the most problematic web use in the 18-25 age range.

There is significant difference in the distribution of students in the three levels of Internet problematic use: factors mean values are higher in subjects aged 18-25, but only in total sample and among females. The last result is confirmed by the presence of significant negative correlation between age and total IAT score, only in the total sample and in the females' sample. Factor 2 mean values correlates negatively with age, on the other hand Factor 1 values do not.

The current study deals with higher levels of problematic use of the web in male subjects than in female, in line with most of the studies conducted in the field of pathologies related to the excessive use of the Internet<sup>27</sup>. Our findings confirm previous studies, which report the impact of the age variable on the results and the higher prevalence of IA in young people. According to our results, however, the youth age is stronger than male gender in determining the level of problematic internet use. Yen et al. found that old boys had the highest rate of Internet addiction among four subgroups of the sample (young boys, old boys, young girls and old girls),

followed by young boys. Instead, no difference in the rate of Internet addiction was found between old and young girls.

Our findings indicate that higher rates of problematic internet use are present in young girls compared to old girls, while in male subjects the problematic internet use is independent from youth age or adulthood.

As far as we are aware no previous studies analysed the relationship between the IAT factors (interpersonal, emotional and obsessive conflict, online time management and compromised personal wellbeing), age and gender.

We found that the IAT is a valid instrument for assessing the risk of Internet addiction among the Italian sample of university students, as previously reported in other Italian studies.

We recommend, as in the 2-factor structure model by Servidio et al.<sup>17</sup>, that “email” in item 7 should be reworded as “the internet” and that item 4 should be deleted or altered to reflect recent changes in the significance of social networks in the medium of the internet; considering also a theoretical explanation based in other studies (today we can see the email in our smartphones many times a day and this behaviour can be considered normal).

There are some limitations to this study; we did not collect other factors associated with Internet as the main location of internet use, sleep disorders, and others;

participants in this study were students from a single university who volunteered through school advertisements. Moreover, students who reported an internet problematic use have not been subjected to a diagnostic evaluation of IA<sup>28</sup>.

In conclusion, our study confirm that a problematic use of the internet is a common problem also among young Italian students and suggest the need for future studies conducted to determinate clinical and social factors related to IA: this analysis could be useful to an early identification of individuals at risk for the development of IA and to promote structured interventions according to current knowledge in addictive behaviours<sup>29</sup>.

Moreover, if IA is a multidimensional construct, in that each individual dimension offers incremental utility in understanding and treating this problematic behaviour, then tools used to assess IA should measure and reproduce reliably this dimensionality<sup>30</sup>.

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## Conflict of interest

None.

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# Reliability of the Italian version of the 16-item Prodromal Questionnaire (iPQ-16) for psychosis risk screening in a young help-seeking community sample

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## Summary

### Objective

Among current early screeners for psychosis-risk states, the Prodromal Questionnaire-16 items (PQ-16) is used. We aimed to assess reliability of the Italian version of the PQ-16 in a young help-seeking sample.

### Methods

We included 151 individuals, aged 13-35 years, seeking help at the Reggio Emilia outpatient mental health services in a large semirural catchment area (550.000 inhabitants). Participants completed the Italian version of the PQ-16 (iPQ-16) and were subsequently evaluated with the Comprehensive Assessment of At-Risk Mental States (CAARMS). We examined test-retest reliability, internal consistency and diagnostic accuracy (i.e. sensitivity, specificity, positive and negative predictive values, and positive and negative likelihood ratios) between PQ-16 and CAARMS UHR-defined criteria using coefficient of stability ( $k$ ), Cronbach's alpha and Cohen's kappa, respectively.

### Results

The iPQ-16 showed excellent short term test-retest reliability ( $k = 0.898$ ), high internal consistency ( $\alpha = 0.810$ ) and acceptable diagnostic accuracy (sensitivity = 73.5% and specificity = 75.9% at the proposed cut-off of  $\geq 6$  on symptom total score).

### Conclusions

Psychometric properties of the iPQ-16 were satisfactory. The iPQ-16 is a suitable screening tool for routine use in mental health care services. Indeed, it is short and therefore easy to implement in routine assessment.

### Key words

Ultra-High Risk • Prodrome • Early detection • Screening • Psychosis • Schizophrenia • Assessment

## Introduction

Psychoses are disabling disorders and their life-changing impact is more prominent in adolescents and young adults <sup>1</sup>. In the last 25 years, several studies suggested that early intervention in psychosis might improve outcome and reduce psychosis treatment-related costs <sup>2</sup>. In this context, McGorry et al. <sup>3</sup> proposed the notion of Ultra-High Risk (UHR) mental states to identify subjects with prospectively high (but not inevitable) imminent risk of developing psychosis. Focusing mainly on attenuated positive symptoms, the UHR criteria are: (a) Attenuated Psychotic Symptoms (APS), which represent subthreshold positive symptoms; (b) Brief Limited Intermittent Psychotic Symptoms (BLIPS), which are transient positive symptoms that spontaneously disappear within 1 week; and (c) Genetic Risk

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and Functioning Deterioration syndrome (GRFD), a trait/state risk condition characterized by a history of psychosis in first-degree family members or a schizotypal personality disorder in the subject together with a low functioning for at least 1 month<sup>4</sup>. Translating the early detection/intervention research framework into clinical care pathways relies, in part, on the recognition of these young people at the earliest point in their help-seeking trajectory<sup>5</sup>.

In the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5)<sup>6</sup>, the Attenuated Psychosis Syndrome has been included as a new nosographical category that requires further study. With a lifetime prevalence rate of almost 13%, the incidence of Attenuated Psychosis Syndrome in the general help-seeking population (aged 13-40 years) seems to be more frequent than 7% (with a peak of approximately 22% in 11-13 year-olds)<sup>7</sup>. Its diagnostic criteria depend on the UHR criteria using clinical interviews (such as CAARMS)<sup>4</sup>, which generally require extensive training to be administered and can take hours to be completed<sup>8</sup>. Therefore, an array of self-report screening tools has been developed to preselect potential UHR individuals for subsequent in-depth clinical assessment<sup>9</sup>. Accumulating empirical evidence suggests that these self-report instruments are sufficiently sensitive and specific to detect the majority of those subjects that merit a more comprehensive evaluation for UHR or First-Episode Psychosis (FEP)<sup>10</sup>.

The 92-item Prodromal Questionnaire (PQ-92)<sup>11</sup> is the most commonly used screener in the literature<sup>9</sup>. However, this instrument remains rather time-consuming for routine screening<sup>12</sup>. Thus, Ising et al.<sup>10</sup> developed a 16-item version of the PQ (PQ-16), which showed good psychometric properties for screening large help-seeking sample in general mental health care services for nonpsychotic disorders<sup>13</sup>. In young adults, a cut-off score of  $\geq 6$  on symptom total score predicts CAARMS UHR/psychosis diagnosis with high sensitivity (87%) and specificity (87%)<sup>10</sup>.

Overall, early intervention in young people at UHR for developing psychosis are less widespread in Italy than in other European countries<sup>1</sup>. In particular, some pilot programmes have focused specifically on early detection and intervention in UHR young adults, aged 18-30 years (see Cocchi et al.<sup>14</sup>). Therefore, translating an easy and suitable self-report screening instrument (such as the PQ-16) into Italian language could lead to the implementation of specific services for UHR individuals within the framework of Italy's National Health Service. To the best of our knowledge, no psychometric evaluation study on the PQ-16 in an Italian clinical sample has been reported in the literature to date. Thus, the current study was designed to test the reliability of the

Italian version of the PQ-16 (iPQ-16) in identifying young people at UHR of psychosis in a help-seeking community population.

## Materials and methods

### Setting

As detailed in Raballo et al.<sup>15</sup>, the "Reggio Emilia At-Risk Mental States" (ReARMS) project is an early detection infrastructure implemented under the aegis of the "Regional Project on Early Detection and Intervention in Psychosis" in the Reggio Emilia Department of Mental Health. This project aims: (a) to identify people with FEP and individuals at high clinical risk according to UHR criteria<sup>4</sup> among help-seeking adolescents and young adults (13-35 years) through a multi-step procedure; and (b) to provide evidence-based interventions that are supposed to be effective in UHR/FEP subjects (i.e. intensive case management, family psycho-education, individual cognitive-behavioral therapy, pharmacological treatment, as appropriate). The first filtering step included a pre-clinical triage service, conducted by trained non-medical personnel, using the "Screening Schedule" for Psychosis (SS)<sup>16</sup>. Such triage was mainly meant to maximise appropriate referrals to the ReARMS project and avoid over-inclusion of subjects clearly outside the severity threshold for presumed psychosis risk spectrum. The second step included a comprehensive multidimensional battery including the iPQ-16, followed by the administration of the CAARMS to define the clinical status (i.e. psychosis risk, psychosis, or neither) and the consequent access to the ReARMS clinical-therapeutic pathways<sup>15</sup>. Complying with the declaration of Helsinki, relevant ethical approvals were locally sought for the study.

### Participants

For the purpose of the study (i.e. field-testing the reliability of the iPQ-16 in identifying UHR mental states), we focused on adolescent and young adult help-seekers, aged 13-35 years, who were consecutively referred to all of child/adolescent and adult mental health services of the Reggio Emilia Department of Mental Health between September 2012 and September 2017. In the present research, inclusion criteria were: (a) specialist help-seeking; (b) age between 13 and 35 years; and (c) presence of UHR criteria defined by the CAARMS (i.e. APS, BLIPS, and/or GRFD)<sup>4</sup> at the initial assessment. Individuals who were below the CAARMS UHR threshold were considered as CAARMS UHR negative cases.

The exclusion criteria were modeled on the psychometric approach adopted by Ising et al.<sup>10</sup> in the validation study of the original Dutch version of the PQ-16: (a) his-



## PQ-16

Nome .....  
 Data di nascita .....  
 Data .....

*Se hai un'età compresa tra 12 e 35, per favore compila il questionario*

Il questionario esplora aspetti dei tuoi pensieri, sentimenti ed esperienze. Per cortesia, leggi attentamente ogni affermazione e indica se sei d'accordo o in disaccordo cerchiando "vero" o "falso" sulla destra. Cerca di rispondere ad ogni domanda. Nel caso tu risponda VERO, indica nell'ultima colonna il livello di disagio associato. Per favore, rispondi a tutte le domande.

Se hai risposto "Vero", quanto disagio hai provato?

Nessuno    Lieve    Medio    Grave

1.	Ho perso interesse per cose che prima mi piacevano.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
2.	Spesso mi sembra di vivere degli eventi esattamente come mi fossero già capitati prima (déjà vu)	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
3.	A volte sento l'odore o il sapore di cose che gli altri non riescono a sentire.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
4.	Spesso sento suoni insoliti come esplosioni, schiocchi, sibili, schianti o squilli nelle orecchie	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
5.	A volte mi sono sentito confuso sulla natura reale o immaginaria di una esperienza	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
6.	Guardandomi allo specchio o guardando un'altra persona, ho visto il volto cambiare davanti ai miei occhi.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
7.	Divento estremamente ansioso quando incontro qualcuno per la prima volta.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
8.	Ho visto cose che altri apparentemente non riescono a vedere	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
9.	I miei pensieri sono talvolta così forti che posso quasi udarli	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
10.	A volte colgo un significato speciale nelle pubblicità, nelle vetrine dei negozi o nel modo in cui sono disposti gli oggetti intorno a me.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
11.	A volte mi sono sentito come se non avessi controllo sulle mie idee o pensieri	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
12.	Talvolta mi capita di essere distratto all'improvviso da suoni distanti ai quali normalmente non presto attenzione	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
13.	Ho sentito cose che gli altri non riescono a sentire, come voci di gente che bisbiglia o che parla.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
14.	Ho spesso la sensazione che gli altri ce l'abbiano con me.	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
15.	Ho avuto la sensazione che qualche persona o forza mi stia accanto anche se non posso vederla	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
16.	Ho l'impressione che parti del mio corpo siano cambiate in qualche modo, o che funzionino in modo diverso da prima	<input type="checkbox"/> Vero	<input type="checkbox"/> Falso	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

**Hai risposto a tutti gli item? Grazie per aver compilato il questionario**

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 Adattamento italiano a cura di Andrea Raballo, Giorgio D. Kotzalidis, Valeria Savoja, Andrea Solfanelli, Antonio Preti, Università di Roma "Sapienza", 2012.

Italian version based on:

**PQ-92** Rachel Loewy, Adrian Raine, Tyrone Cannon © UCLA 2002

Authorized Italian version by Giorgio D. Kotzalidis, Valeria Savoja, Andrea Solfanelli, University of Rome "La Sapienza", 2011

**PQ-B** Rachel Loewy, Tyrone D. Cannon, © University of California 2010

Authorized Italian version by Antonio Preti, Andrea Raballo, Studio CAPIRE: Cagliari – Psychosis: Investigation on Risk Emergence, 2011.

**FIGURE 1. iPQ-16.**

tory of past frank psychotic episodes, either affective or schizophrenic (as described in the DSM-5)<sup>6</sup>; (b) history of previous exposure to antipsychotics; (c) current substance dependence; (d) severe learning disability or known mental retardation (Intelligence Quotient < 70); (e) neurological disease or any other medical disorder associated with psychiatric symptoms; (f) poor fluency in the Italian language; and (g) residence outside the catchment area. All these exclusion criteria have been applied after the SS administration in order to select a sample comparable to one assessed by Ising et al.<sup>10</sup>. All help-seekers entering the ReARMS project agreed to participate to the research and gave their informed consent to the psychopathological evaluation, composed – among others<sup>15</sup> – by the CAARMS (approved Italian translation by Raballo et al. – CAARMS-ITA –<sup>17</sup>) and the PQ-16 (Italian adaptation by Raballo et al. – iPQ-16 –<sup>18</sup>) (Fig. 1). While in chronological terms the iPQ-16 was administered after the SS for psychosis, the meaning of its administration was different (i.e. zooming in on prodromal experiences before the CAARMS-based interview) and the CAARMS assessors were blinded to the iPQ-16 scores.

### Measures

The CAARMS is a semi-structured clinical interview designed to cover different aspects of attenuated psychopathology as well as functioning (via the integrated Social and Occupational Functioning Assessment Scale – SOFAS – module)<sup>4</sup>. It takes approximately 1-1.5 hours to be administered and consists of 27 items (each one scored in terms of frequency/duration – 0-6 – and intensity – 0-6 –). Those items are clustered in seven subscales: (a) “Positive Symptoms”; (b) “Cognitive Change, Attention and Concentration”; (c) “Emotional Disturbance”; (d) “Negative Symptoms”; (e) “Behavioral Change”; (f) “Motor/Physical Changes”; and (g) “Gen-

eral Psychopathology”. The CAARMS “Positive Symptoms” subscale, which covers delusions, hallucinations and thought disorder, is used to determine the UHR criteria<sup>4</sup>. UHR status is defined as follows: (a) GRFD group: schizotypal personality disorder in the subject or history of psychosis in a first-degree family member associated with 30% drop in functioning for ≤ 1 month or chronic low functioning (the decline in functioning is estimated by subtracting the actual SOFAS score from the highest SOFAS score in the past year); (b) APS group: subthreshold positive psychotic symptoms within the past 12 months; and (c) BLIPS group: criteria for psychotic disorder met for < 7 day and remitting spontaneously (i.e. without antipsychotic medication). CAARMS interviews are conducted by specialized personnel including clinical psychologists and psychiatrists, who underwent collective supervision by the main author of the approved Italian translation<sup>17</sup>, who was trained at Orygen, the National Youth Research Center in Melbourne, Australia. The inter-rater reliability of these assessments was ensured by regular CAARMS scoring workshops and supervision sessions. The PQ-16<sup>10</sup> is a self-report instrument specifically designed to detect people at risk of psychosis. It is composed of nine items on perceptual aberrations/hallucinations, five items on unusual thought content/delusions, and two negative symptoms. This instrument only takes approximately 3 minutes to be completed and assesses the presence of positive and negative symptom items on a true/false Likert-scale, according to the individual subjective experience in the last month. Moreover, distress is added on a 4-point scale for each endorsed item (from 0 = “no distress” to 3 = “severe distress”). The PQ-16 can be scored by the total number of symptoms endorsed (range 0-16) or the sum of distress scores (range 0-48)<sup>10,19</sup>. When using the symptom total

**TABLE I. CAARMS criteria, demographic and clinical data.**

	Total sample (n = 151)	UHR- (n = 81)	UHR+ (n = 70)	$\chi^2/t/Z$
Gender (female)	79 (52.3%)	41 (50.6%)	38 (54.3)	0.203
Ethnic group (Caucasian)	130 (86.1%)	69 (85.2%)	61 (87.1%)	0.012
Mother tongue (Italian)	138 (91.4%)	76 (93.8%)	62(88.6%)	0.735
Age	20.00 (5.78)	20.26 (6.44)	19.54 (4.53)	0.541
Years of Education	11.34 (2.39)	11.47 (2.40)	11.19 (2.38)	0.726
DUI (in weeks)	69.59 (51.00)	66.39 (54.65)	72.95 (47.34)	-0.572
iPQ-16 symptom total score (range 0-16)	5.48 (3.66)	4.19 (3.48)	7.04 (3.25)	-5.206 *
iPQ-16 total distress score (range 0-48)	14.03 (10.72)	10.41 (10.21)	18.42 (9.81)	-5.207 *

\*  $p < 0.001$ . Frequencies and percentages, mean (standard deviation), chi-squared ( $\chi^2$ ) test (with Yates correction), Student's *t* test, and Mann-Whitney *U* test (*Z*) values are reported.

score, a cut-off threshold of  $\geq 6$  appeared appropriate in general mental health settings<sup>10</sup>. Using the total distress score may improve the accuracy of the instrument<sup>19</sup>. In general mental health help-seeking populations, a total distress threshold of  $\geq 8$  was supported<sup>19,20</sup>.

### Statistical analysis

Data were analyzed using the "Statistical Package for Social Science" (SPSS) 18.0 for Windows<sup>21</sup>. For the specific purposes of this study, the sample was dichotomized as follows: UHR+ (i.e. those who were above CAARMS UHR threshold [that is APS, BLIPS and/or GRFD]), and UHR (i.e. those who are below such threshold)<sup>4</sup>. The two subgroups were compared on socio-demographic, clinical, and psychopathological parameters. Categorical data were analysed using Chi-squared test with Yates' correction. Quantitative variables were examined using the Mann-Whitney's U test or the Student's t-test – as appropriate –.

Following the psychometric approach adopting by Kotzalidis et al.<sup>22</sup> in the validation study of the Italian version of the PQ-92 in order to compare their and our results, in the present research we measured short-term test-retest reliability of the iPQ-16 over two weeks calculating the coefficient of stability<sup>23</sup> on a subsample of 15 participants who had scored  $\geq 6$  on the iPQ-16 total symptom score at the baseline assessment. This rather short-time interval was chosen to limit the possible impact of both symptomatic changes and memory effects<sup>24</sup>. According to Heise<sup>23</sup>, we interpreted test-retest reliability coefficients as follows:  $\geq 0.90$  excellent reliability, 0.81-0.90 good reliability, 0.71-0.80 acceptable reliability, 0.61-0.70 questionable reliability, 0.51-0.60 poor reliability, and  $\leq 0.50$  unacceptable reliability.

Moreover, we examined long-term test-retest reliability of the iPQ-16 calculating the coefficient of stability within all the participants who had scored  $\geq 6$  on the iPQ-16 symptom total score at initial assessment ( $n = 116$ ). As additional measure of reliability, the internal consistency of the iPQ-16 was assessed using the Cronbach's  $\alpha$  statistics within the total sample. A score above 0.65 represented a sufficient internal consistency<sup>10</sup>.

Furthermore, we investigated the concurrent validity of the iPQ-16 by comparing its results to CAARMS outcomes. In the total sample, we examined diagnostic accuracy measures (i.e. sensitivity, specificity, positive and negative predictive values – PPV and NPV –, and positive and negative likelihood ratios – LR+ and LR– –, that balance sensitivity against specificity). As an additional measure of concurrent validity, the correspondence of positive results on the iPQ-16 (i.e. a symptom total score  $\geq 6$  or, as alternative, a total distress score  $\geq 8$ ) and on the CAARMS (i.e. a score  $\geq 3$  on at least one positive symptom item) was also examined by Cohen's kappa statistics.

## Results

Over the course of the study, 151 individuals (79 females and 72 males; mean age  $\pm$  Standard Deviation [SD] = 20.00  $\pm$  5.78) consecutively participated at the intake interview within the ReARMS protocol. Table I shows screening outcomes and demographic characteristics of the total sample and the two subgroups, i.e. UHR+ ( $n = 70$ ) and UHR- ( $n = 81$ ). No significant differences were found in terms of gender, ethnic group, mother tongue, age, years of education, and Duration of Untreated Illness (DUI).

In comparison with UHR-, UHR+ individuals showed significantly higher iPQ-16 symptom total score and total distress score (Tab. I).

To calculate short-term test-retest reliability, the iPQ-16 was re-administered to 15 participants who had scored  $\geq 6$  on symptom total score at the first assessment. Their socio-demographic characteristics were comparable to those of the total sample, with a mean age of 19.94 years and a SD of 4.89 years. Eight (53%) participants were females. The coefficient of stability was 0.898 for iPQ-16 symptom total score, indicating good to excellent short-term test-retest reliability<sup>23</sup>.

To examine long-term test-retest reliability, the iPQ-16 was administered over 1 year to 116 individuals who had scored  $\geq 6$  on symptom total score at the baseline. Their demographic features were comparable to those of the entire sample, with a mean age of 20.20 years and a SD of 5.59 years. Sixty (51.7%) subjects were females. The coefficient of stability was 0.486, indicating unacceptable long-term test-retest reliability<sup>23</sup>.

Across the total sample, the iPQ-16 symptom total score showed a Cronbach's alpha of 0.810.

At the proposed PQ-16 symptom total score cut-off of  $\geq 6$ <sup>10</sup>, 68 participants (45%) scored positive; of these, 50 (73.5%) also scored  $\geq 3$  on any positive CAARMS item (i.e. meeting the UHR threshold). Altogether, 20 participants (28.6%) with any CAARMS positive score  $\geq 3$  were missed by this PQ-16 cut-off, and 20 (13.2%) were falsely identified. Cohen's kappa was 0.483, consistent with a fair agreement<sup>25</sup>. With regard to the diagnostic accuracy at the proposed PQ-16 cut-off of  $\geq 6$  on symptom total score, sensitivity was 73.5%, specificity 75.9%, PPV 71.4%, NPV 77.8%, LR+ 3.05, and LR- 0.35. Thus, at this threshold, the iPQ-16 symptom total score was slightly better in ruling out than in ruling in possible UHR status, changing post-test probability to a small (but sometimes important) degree<sup>26</sup>.

Considering the proposed PQ-16 cut-off of  $\geq 8$  on total distress score<sup>19,20</sup>, sensitivity was 85.3%, specificity 51.8%, PPV 59.2%, NPV 81.1%, LR+ 1.77, LR- 0.28, and Cohen's kappa 0.344.

## Discussion

Aim of the current was to evaluate the reliability of PQ-



16 in an Italian clinical sample of young people at UHR of psychosis. Introducing and promoting the routine use of the Italian version of a validated assessment tool to detect UHR subjects in the general help-seeking population (such as the iPQ-16) could positively impact on the implementation of specific services for early detection and intervention on UHR individuals within the framework of Italy's National Health Service. In the current study, we therefore examined test-retest reliability and internal consistency of the iPQ-16 in consecutive young help-seekers attending all of child/adolescent and adult mental health services of the Reggio Emilia Department of Mental Health.

In comparison with UHR-, UHR+ individuals showed significantly higher iPQ-16 total scores. On a dimensional level – as expected on the basis of the PQ-16 item composition – these findings suggest that increasing PQ-16 scores are associated with the severity of both psychotic and general psychopathology, as well as the intensity of distress related to prodromal symptoms.

We found excellent reliability of the iPQ-16 with regard to internal consistency of the symptom total score ( $\alpha = 0.810$ ). Similarly, in a Dutch adult help-seeking sample attending to a secondary mental health care service, the PQ-16 showed good internal consistency, with a Cronbach's alpha of 0.774<sup>10</sup>. Internal consistency in our clinical sample was even better than the high reliability reported for the Chinese PQ-16 version ( $\alpha = 0.750$ ) in 579 college students<sup>20</sup> and the Dutch PQ-16 version ( $\alpha = 0.790$ ) in 176 help-seeking adolescents (aged 12-17 years) attending one of the three Child and Adolescent Mental Health Services in Rotterdam in the Netherlands<sup>13</sup>. In our sample, iPQ-16 demonstrated a Cronbach's alpha value that we consider as satisfactory internal consistency for a screener that has to come before a clinical interview<sup>10</sup>.

In a recent validation study of the Italian version of the PQ-92, Kotzalidis et al.<sup>22</sup> re-administered the instrument to 15 individuals two weeks after first assessment and found excellent short-term test-retest reliability (coefficient of stability = 0.942 for PQ-92 total score). Similarly, we found a coefficient of stability equal to 0.898, indicating a good to excellent short-term (two-week) test-retest reliability of the iPQ-16.

Based on what Kotzalidis et al.<sup>22</sup> suggested, we also addressed longer term test-retest reliability administering the iPQ-16 over 1 year to all the participants who had scored  $\geq 6$  on symptom total score at first assessment. We found a coefficient of stability = 0.486, indicating unacceptable long-term test-retest reliability. According to Michel et al.<sup>24</sup>, this finding suggests that the self-report screening questionnaire assessed a fluctuating condition rather than a trait characteristic, i.e. a condition itself that varied between test and retest. When examin-

ing these results, some methodological peculiarities of the current study shall be considered. Indeed, ReARMS is a clinically project providing evidence-based interventions that are supposed to be effective in UHR individuals (i.e. intensive case-management, family psycho-education, individual cognitive-behavioral therapy within the framework of assertive community treatment). Precisely because providing the optimal treatment for the help-seekers was the main ethical mandate in our clinical setting, our treatments were not controlled (e.g. against placebo group or other treatments), but evenly delivered to all UHR participants.

In the Dutch study validating the PQ-16, Ising et al.<sup>10</sup> observed an excellent concurrent validity with CAARMS diagnoses in a sample of adult help-seekers for non-psychotic disorders in general mental health care services. A cut-off of  $\geq 6$  on symptom total score had a high sensitivity (87%) and high specificity (87%) in discriminating between people with UHR/psychosis and individuals without CAARMS diagnosis, with a PPV of 44%. With regard to the diagnostic accuracy at the proposed PQ-16 cut-off of  $\geq 6$  on symptom total score<sup>5</sup>, sensitivity in our sample (73.5%) was lower than previously reported for the PQ in its various versions<sup>9</sup>. However, this result was similar to that (62%) observed by Kotzalidis et al.<sup>22</sup> in the validation study of the Italian version of the 92-item PQ. Moreover, at the proposed PQ-16 cut-off of  $\geq 6$ , our PPV (approximately 71%) was higher than previously reported, with values ranging between 29% and 44%<sup>9 10 20 22</sup>. In particular, PPV was only equal to 38% in the validation study of the Italian version of the 92-item PQ<sup>22</sup>. The difference between these findings may be the result of differences in selection procedures. In fact, first screening procedure in the ReARMS protocol included a triage service using the SS for psychosis<sup>16</sup>, which probably excluded a certain amount of true negative cases.

In our sample, specificity (approximately 76%) is consistent with that previously reported. Indeed, specificity values were also good to excellent in the Dutch study validating the original PQ-16 at a cut-off of 6 or more endorsed prodromal symptoms<sup>10</sup> and in the validation study of the Italian version of the 92-item PQ<sup>22</sup> (87% and 82%, respectively). Otherwise, our NPV (approximately 78%) was lower than previously reported, with values ranging between 90% and 100%<sup>10 20</sup>. Kotzalidis et al.<sup>22</sup> found a NPV of 91% in the validation study of the Italian version of the 92-item PQ. The difference between these findings may be the result of the same differences in selection procedures previously mentioned.

Compared to the PQ-16 cut-off of  $\geq 6$  on symptom total score, the proposed  $\geq 8$  threshold on total distress score<sup>19</sup> increased sensitivity value up to 85%, but with a significant decrease in specificity (approximately 52%).

However, according to Loewy et al.<sup>11</sup>, for screening purposes greater weighting should be given to sensitivity over specificity as part of a two-step screening process. Using the proposed PQ-16 cut-off of  $\geq 6$  on symptom total score, a sensitivity value of 73% is quite low and means that a number of people who would be appropriate for early intervention services are not being identified. Considering this argument, the cut-off of  $\geq 8$  on total distress score might be more appropriate.

## Limitations

Firstly, a possible limitation of this research is that the iPQ-16 was completed in a population plausibly “enriched” for the target diagnoses, i.e. young help-seekers with clinical features of possible psychosis. Therefore, the current field-test of the iPQ-16 was not meant to identify cut-offs applicable to the general population, in which the psychometric endorsement of so-called psychotic-like experiences might occasionally occur, yet with transient temporal pattern, not necessarily accompanied by distress or treatment seeking, and not inevitably followed by a transition to psychosis<sup>1,10</sup>. Indeed, a certain number of false positives would be identified.

Another limitation is that since the SS for psychosis<sup>16</sup> was used in the eligibility triage for the ReARMS protocol (i.e. before the iPQ-16 administration), this is likely to impact the generalizability of our findings. Indeed, the PQ would ideally be used as the first step in a 2-stage screening process<sup>11</sup>. Therefore, by excluding a certain amount of true negative cases in the pre-PQ step, this would reduce the specificity of the screener.

Finally, although the ability of the iPQ-16 to include cases appears to be less than its ability to exclude them, it may still miss some cases worthy of further investigation<sup>22</sup>. In this respect, Ising et al.<sup>10</sup> included 4-point scale questions on distress following each PQ-16 item

to examine if this enhanced the PPV of the instrument. However, in the present research the PPV was good.

## Conclusions

The Italian version of the PQ-16 showed satisfying psychometric properties, comparable to 92-item homologue<sup>22</sup>. However, yet optimal cut-off to improve concurrent validity and, consequently, economic and clinical usefulness has still to be determined through multi-centric testing. Moreover, the iPQ-16 seems to be a suitable screening tool for routine use in mental health care services. Indeed, it is short (taking only few minutes to be completed) and therefore easy to implement in routine assessment. Finally, the iPQ-16 can be helpful in identifying potential psychotic symptoms for further exploration in an early phase, especially in young adults and adolescents with low functioning.

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## Conflict of interest

None.

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# Is persecution deserved? A study on a non-clinical Italian sample using Persecution and Deservedness Scale (PaDS)

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## Summary

### Objectives

To achieve a validation of the Persecution and Deservedness Scale (PaDS) in an Italian convenience sample from general population. To catch the link between paranoia, self-esteem, depressive symptoms and aberrant salience assuming that these constructs could be related to paranoia.

### Methods

312 individuals provided complete data on Persecution and Deservedness Scale, The Beck Depression Inventory-Fast Screen, The Aberrant Salience Inventory, The Self-Esteem Rating Scale. Construct and Concurrent validity were assessed.

### Results

PaDS subscales were internally reliable and showed correlations with the psychological measures.

### Conclusions

PaDS is able to measure both severity of persecution and the correlated sense of deservedness. People from general population, experience sub-clinical persecution more probably in relation to some affects of sadness.

### Key words

PaDS • Persecution • Deservedness • Paranoia

## Introduction

Despite the growing interest into the investigation of underlying constructs of paranoid thinking both in clinical and non-clinical population, few measures deeply explore psychological-related constructs of persecution <sup>1</sup>.

This assumes a bigger weight if we consider that the DSM-5 definition of delusion describes it as an unchanging belief, not necessary false, that is indisputable by evidence and often concern existential themes where emotions, especially anxiety, fear and self-concepts are strongly involved. So far, what it remains unclear but is so relevant to a full understanding of the psychotic experience is the role played by inner schema and related emotions. Many authors in the last two decades have theorized about how an individual self-concept, including both self-esteem and self-schemas, low mood and negative schematic beliefs may relate to the formation and maintenance especially of persecutory delusions <sup>2</sup> <sup>3</sup> <sup>4</sup>. According to some authors by studying self-esteem is even possible to intercept different types of paranoia <sup>5</sup> or its dynamic and fluctuating aspects <sup>6</sup> <sup>7</sup>.

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From a recent systematic review<sup>8</sup> few studies investigated whether the degree to which the persecution was thought to be deserved (i.e. poor-me *versus* bad-me paranoia) is an influential feature of self-esteem inpatients or delusion-prone people. Some studies on people with persecutory delusions found negative correlations between perceived deservedness and self-esteem<sup>9,10</sup>. However, comparable degrees of self-esteem between poor-me paranoia patients and healthy sample<sup>11</sup> has been reported.

Interestingly, one study found a similar relation also in non-clinical sample<sup>12</sup> and in healthy delusion-prone people<sup>13</sup>.

More specifically, Melo et al. (2009) evinced that there is a lack of measures able to intercept the presence of both paranoia and deservedness, administrable to both clinical and not clinical samples. To this purpose they developed the Persecution and Deservedness Scale (PaDS) getting a valid measure of paranoia and deservedness for more than one culture (UK and Portuguese people).

In our study we investigated factorial structure and reliability of both persecution and deservedness scales considering age, gender and education of an Italian non-clinical sample. In line with Melo et al. study (2009), we expected reliability and validity of the PaDS also in a different culture.

We also hypothesized that PaDS is able to catch the assumed link between paranoia and the self-esteem concept and relation with unusual salience experience. Unlike Melo et. al. (2009) our non-clinical sample come from general population, extending previous evidence from student samples.

## Methods

### Measures

The Persecution and Deservedness Scale (PaDS) is a brief measure for assessing both the severity of paranoid thinking and the degree of perceived deservedness of persecution. It is composed by two subscales, one measuring persecution, the other the deservedness where deservedness ratings are orthogonal to persecution ratings. If so, deservedness cannot be scored if the person does not feel persecuted.

The persecution subscale (P) has 10 statements of persecutory content, some derived from Fenigstein and Vanable's scale<sup>14</sup>, the others from Melo et al. experience of clinical practice with paranoid patients, each of which could be scored from 0 to 4 (anchors: 0, 'certainly false'; 1, 'possibly false'; 2, 'unsure'; 3, 'possibly true' and 4, 'certainly true').

A deservedness item follows each persecution item and should be completed only if the person scores greater than 1 on the related persecution item; as for P, it is scored 0-4.

Translation of the PaDS into Italian was carried out by one of the authors (IR). Further, a back-translation of the questionnaire into English by a native colleague fluent in both languages was made (see enclosure).

The Beck Depression Inventory-Fast Screen (BDI-FS<sup>15</sup>), contains 7 cognitive and affective items to assess depression. Each item rates on a 4-point scale (0-3). It is scored by summing ratings for each item (range 0-21). The BDI-FS covers symptoms of sadness, pessimism, past failure, loss of pleasure, self-dislike, self-criticalness, and suicidal thoughts and wishes during the "past 2 weeks including today". The cut-off score is 4.

The Aberrant Salience Inventory (ASI<sup>16</sup>) is a 29-item yes-no questionnaire composed by five subscales measuring different aspects of the experience of aberrant salience including feelings of increased significance, sharpening of senses, impending understanding, heightened emotionality and heightened cognition. The Self-Esteem Rating Scale (SERS<sup>17</sup>), is a widely used self-report instrument for evaluating individual self-esteem. It is a uni-dimensional 40-item scale that assesses global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 7-point scale format ranging from never to always.

### Participants and procedure

The study participants included 312 individuals who provided complete data on the variables of interest. The sample was balanced with respect to gender (40.7% males and 59.3% females), and representative of the adult population with respect to age (range = 20 to 65 years old; M = 32.8, SD = 12.8).

Students at the University of L'Aquila collected the data. Each student, after being briefed on the general aims of the research and instructed in how to administer the instruments, was requested to collect data from six people, equally distributed by gender and age.

All the subjects provided written informed consent after a complete description of the study that was approved by the local ethics committee. Statistical analyses were done with SPSS 20 version. A factorial analysis with Principal Component and Varimax Rotation was conducted.

## Results

Persecutory responses: factorial structure and reliability  
The Kaiser-Meyer-Olkin measure of overall sampling adequacy was good, 0.88 and all items had individual measures of sampling adequacy > 0.83.

Only one factor was extracted that had an eigenvalue greater than one, which accounted for 41.4% of the variance in the item responses. The component loadings were good with nine comprised between .53 and .78 and one equal to .45. The Cronbach Alpha for the 10 persecution items was .83 (Table I).

**TABLE I.** Factor loadings of the 10 Persecution subscale.

Persecution items	Factor loadings
There are times when I worry that others might be plotting against me.	.70
I often find it hard to think of anything other than the negative ideas others have about me	.71
My friends/others often tell me to relax and stop worrying about being deceived or harmed	.63
Every time I meet someone for the first time, I'm afraid they've already heard bad things about me	.60
I'm often suspicious of other people's intentions towards me	.78
Sometimes, I just know that people are talking critically about me.	.65
There are people who think of me as a bad person	.53
People will almost certainly lie to me.	.67
I believe that some people want to hurt me deliberately	.65
You should only trust yourself	.45

**Deservedness responses: factorial structure and reliability**

The Kaiser-Meyer-Olkin measure of overall sampling adequacy was good, 0.7. Four items had only moderate individual measures of sampling adequacy (greater than .5, smaller than .7), the rest were greater than .7.

Three components with eigenvalues greater than 1 were extracted. The first accounting for 40% of the variance and the second 15.6 and the third 10.2. However, examination of the scree-plot suggested a uni-dimensional solution. When only one factor was extracted, it accounted for 40% of the variance in the item responses. The component loadings were comprised between .40 and .74 and just one equal to .3 (Table II).

Table III shows the descriptive values of the assessed variables and the correlation between the two PaDS subscales and well validated measures of depression, aberrance salience and self-esteem.

Scores on the BDI-FS correlated strongly with the 10-item Persecution subscale of the PaDS ( $r = .42$ ,

$p < .001$ ) and moderately with the deservedness subscale ( $r = .24$ ,  $p < .001$ ). ASI total score positively correlated with PaDS Persecution, while no significant correlations emerged with the PaDS Deservedness subscale. Significant correlations emerged between PaDS Persecution and the SERS total score. ( $r = -.39$ ) (Fig. 1).

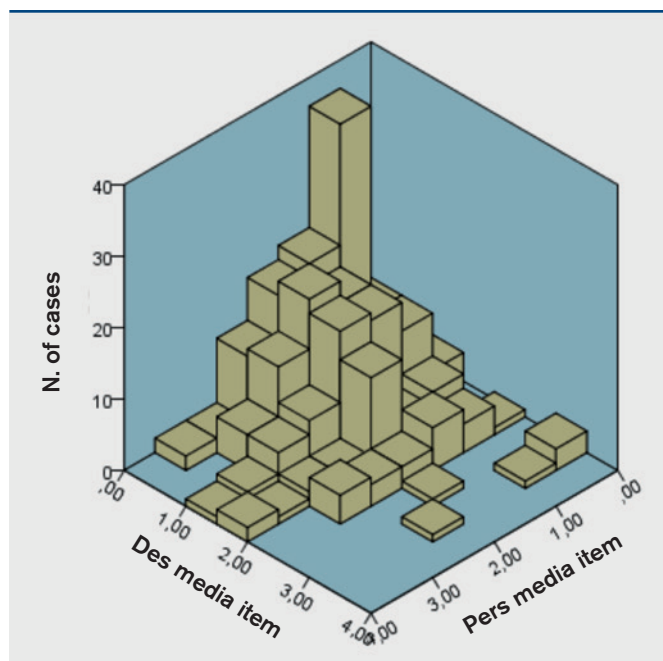
The above results were based upon individuals reporting at least one deservedness response as indicated by Melo et al. (2009).

The mean persecution ratings were  $13.02 \pm 7.84$ , significantly higher among females compared to males: mean 1.30 (SD 0.75) and mean 1.53 (SD 0.70) respectively (Mann-Whitney  $z = 2.30$ ,  $p < .05$ ,  $n = 311$ ). The mean deservedness ratings were  $8.37 \pm 7.15$ , not also significantly different between males and females (Mann-Whitney  $z = .56$ ,  $p = \text{NS}$ ).

To investigate the differences between high vs low deservedness, we selected the 33 third percentile of Deservedness distribution ( $n = 122$ ) and calculated

**TABLE II.** Factor loadings of the 10 Deservedness subscale.

Deservedness items	Factor loadings
Do you feel like you deserve others to plot against you?	.40
Do you feel like you deserve people to have negative ideas about you?	.53
Do you feel like you deserve being deceived or harmed?	.74
Do you feel like you deserve to have people hearing bad things about you?	.36
Do you feel like you deserve people having bad intentions towards you?	.70
Do you feel like you deserve people to talk critically about you?	.56
Do you feel like you deserve people to think of you as a bad person?	.66
Do you feel like you deserve people to lie to you?	.65
Do you feel like you deserve people to hurt you deliberately?	.51
Do you feel like you deserve to have no one you can trust?	.26



**FIGURE 1.** Joint distribution of PaDS-10 Deservedness (*Des media item*) and Persecution (*Pers media item*) scores.

t-test unpaired comparison versus the remaining 154 subjects, for SERS, ASI, BDI-FS and age. SERS and BDI-FS significantly differ at p.05 and p. 001 level, respectively.

### Discussion

To our knowledge, this is the first study using PaDS in an Italian sample.

Our study aimed to contribute to the growing interest into the understanding and investigation of self-constructs underlying delusions and paranoid thinking.

First, the study aimed to provide a validation of PaDS in

a non-clinical sample, from general population, extending previous evidence from student samples.

Similarly to Melo et al study (2009) we found high alpha coefficient, confirming that PaDS is able to measure both severity of persecution and the sense of deservedness, separately. This is not achievable by other existing measures of paranoia<sup>18</sup>.

In our sample, persecution, differently from deservedness, shows an association to a sub-clinical perceived unusual assignment of significance to innocuous stimuli, the aberrant salience<sup>19</sup> as measured by ASI, corroborating the effectiveness of PaDS in measuring ‘hypersensitivity to interpersonal cues’. The presence of these sub-clinical subjective experiences, as reported in different non-clinical sample<sup>20 21</sup>, is not surprising, if we consider that even psychotic symptoms are a relatively common experience in the general population.

These data seem to describe the experience of feeling a paranoid state of mind, supporting the ability of PaDS to be associated with ASI psychosis-prone thinking.

We found that the deservedness scores of this non-clinical sample were significantly similar to Melo et al (2009) study results. Even joint distribution of PaDS scores are very similar to Melo et al., 2009 ones.

Trower and Chadwick (1995) argued that there are two types of paranoia: ‘poor-me’ (PM) paranoia in which individuals ‘tend to blame others, to see others as bad, and to see themselves as victims’, as they believe others are plotting to harm them without any justification and ‘bad-me/punishment’ (BM) paranoia, on the other hand, where individuals ‘tend to blame themselves, see themselves as bad, and view others as justifiably punishing them’.

In our study we deduce that people from general population experience sub-clinical persecution more probably in relation to some affects of sadness and to a more general negative self-esteem, as also evinced by Chadwick et al. (2005). Results confirmed that BM para-

**TABLE III.** Descriptive statistics and correlations (Pearson  $r > .25, p < .001$  are reported).

	N	Descriptive statistics		Correlations (Pearson r)		
		Mean	Standard deviation	Age	total SERS	total ASI
Age (ys)	310	32.38	12.86			
Educational level (ys)	290	15.68	3.16			
BDI-FS total score	310	.29	.38		-.48	
SERS total score	312	3.29	1.33	.30		
ASI total score	310	.53	.18			
Persecution	311	13.02	7.85	-.29	-.39	.29
Deservedness	276	8.38	7.15			

*The Beck Depression Inventory-Fast Screen (BDI-FS); The Aberrant Salience Inventory (ASI); The Self-Esteem Rating Scale (SERS)*

noia (high deservedness scores) as measured by PaDS seems to be closer to depressed mood. Moreover, higher deservedness is associated with lower self-esteem and depressive symptoms.

This result remind data from studies on cognitive models of psychosis where negative emotions as anxiety, fear, sadness seem to be a core feature into the formation and the maintenance of paranoid thinking.

PaDS is an interesting and useful measure of paranoid thinking and perceived deservedness of persecution,

in non-clinical population, which can provide a portion of comprehension into the complex and multi-factorial picture of delusion. This is particular true if we consider psychosis along a continuum from normal to clinical population<sup>20,21</sup>. Finally, our study confirms that paranoid thinking in a non-clinical population appears to be bad-me linked.

### Conflict of interest

None.

## ENCLOSURE: PADS\_ITALIAN VERSION

Persecution and Deservedness Scale (PaDS) – Versione Italiana

Per favore, leggi attentamente ciascuna delle seguenti affermazioni e indica in che misura queste sono vere o false per te, cercando il numero corrispondente.

### 1. Ci sono momenti in cui temo che gli altri potrebbero complottare contro di me.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

#### 1.1 Senti di meritare che gli altri complottino contro di te?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 2. Spesso non riesco a pensare altro che alle idee negative che gli altri hanno su di me.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

#### 2.1 Senti di meritare che gli altri abbiano idee negative su di te?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 3. Spesso i miei amici mi dicono di rilassarmi e di smettere di preoccuparmi di essere imbrogliato o danneggiato

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

#### 3.1 Senti di meritare di essere imbrogliato o danneggiato?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 4. Ogni volta che incontro qualcuno per la prima volta, ho paura che abbia già sentito brutte cose sul mio conto.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

#### 4.1 Credi di meritare che ci siano persone che sentono brutte cose sul tuo conto?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

segue



continua *Enclosure: PaDS\_Italian version*

### 5. Spesso sono sospettoso rispetto alle intenzioni degli altri verso di me.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 5.1 Senti di meritare che ci siano persone che hanno cattive intenzioni verso di te?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 6. A volte so che le persone stanno parlando di me in modo critico.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 6.1 Senti di meritare che le persone parlino di te in modo critico?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 7. Ci sono persone che pensano io sia una brutta persona.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 7.1 Senti di meritare che le persone pensino che tu sia una cattiva persona?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 8. Quasi sicuramente le persone mi mentiranno.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 8.1 Senti di meritare che le persone ti mentano?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 9. Credo che alcune persone vogliano farmi del male deliberatamente.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 9.1 Senti di meritare che le persone ti facciano del male deliberatamente?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

### 10. Bisognerebbe fidarsi solo di se stessi.

Sicuramente falso	Forse falso	Non so	Forse vero	Sicuramente vero
0	1	2	3	4

Se hai risposto da 2 in su all'ultima domanda, per favore rispondi anche alla domanda seguente:

### 10.1 Senti di meritare di non avere nessuno di cui fidarti?

Assolutamente no	Forse no	Non so	Forse si	Moltissimo
0	1	2	3	4

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## Changes in impulse control disorder features in a present kleptomania patient and importance of rational treatment strategy on social dangerousness: a case report

### Summary

*The argument of the present article is the case of a 52 year-old male suffering from compulsive disorders (cocaine addiction, gambling, kleptomania) since adolescence, with behavioural and clinical features changing over time and poorly influenced by pharmacological treatments.*

*At present the patient shows kleptomaniac behaviour pharmacologically treated with antipsychotics, antidepressants and anxiolytics. No specific treatment for compulsive spectrum appears to have been effected along the clinical history of the patient.*

*In agreement with international literature, according to which Pathological Gambling, Kleptomania and Substance Abuse share elements of both Obsessive-compulsive Disorder spectrum and affective spectrum disorders, the authors hypothesized for the case a not specific pharmacological treatment which might in time have led an evolution of the disorder symptoms to other forms of Impulse Control Disorders, with severe implications for his social dangerousness.*

*The analysis of the case suggests that a specifically targeted therapy, also included in the general legal system organization, may be effective to contain such an evolution in patients with Impulse Control Disorders.*

*Specific measures are thus needed for the rehabilitation of clinically similar subjects and for the recovery of their mental functions and normal behaviour.*

### Key words

Impulse control disorder • Compulsive disorders • Kleptomania • Gambling • Cocaine addiction • Social dangerousness • Treatment strategy

### Introduction

The term Kleptomania (KL) was coined by French psychiatrists Esquirol and Marc in the 19<sup>th</sup> century <sup>1</sup>. From as far back as 1878, cases of KL in America have been reported in literature <sup>2</sup>. Over a decade of study and scientific developments have led a DSM-V <sup>3</sup> task force to consider two important changes: separating Pathological Gambling (PG) from Impulse Control Disorders (ICDs); creating a new autonomous category, Disruptive, Impulse-Control, and Conduct Disorders, which consist of illness manifested in behaviours that violate the rights of others (e.g., aggression, destruction of property) and/or that bring the individual into significant conflict with societal norms or authority figures. This category includes oppositional defiant disorder, intermittent explosive disorder, conduct disorder, antisocial personality disorder (which is described in the chapter "Personality Disorders"), pyromania, KL and other specified and unspecified disruptive, impulse-control, and conduct disorders.

KL is a disorder in which the individual impulsively steals even though there is not need to do so (i.e., the individual has money to pay for the stolen items or does not need the stolen goods). Like other ICDs, KL is characterized by an anxiety driven urge to perform an act that is pleasurable in the moment but causes significant distress and dysfunction <sup>4</sup>. Individuals

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with KL experience an increasing sense of tension immediately before committing the theft and gratification or release at the time of committing the theft<sup>3</sup>. Furthermore, the stealing is not committed to express anger or vengeance<sup>3</sup>, it is not done in response to a delusion or hallucination, and it is not better explained by conduct disorder, manic episode, or antisocial personality disorder. Stealing commonly occurs in the form of shoplifting. KL occurs in about 4-24% of individuals arrested for shoplifting<sup>1 4 5 6</sup>. Nevertheless, KL is thought to account for 5% of shoplifting in the U.S.<sup>7</sup>, about \$500 million annual loss. Its prevalence in the general population is very rare, at approximately 0.3-0.6%, but it's possible that it is underestimated because of the embarrassment resulting in KL, it is often kept secret and thus goes undiagnosed<sup>4</sup>. An interesting study of college students ( $n = 791$ ) found that although 28.6% reported having stolen an item in his/her lifetime, only 0.4% met criteria for KL<sup>8</sup>. Although KL is frequently encountered in patients with psychiatric disorders, isolated KL is a relatively rare condition<sup>9</sup>. KL is experienced by a broad range of psychiatric patient populations including 3.7% of depressed patients ( $n = 107$ )<sup>10</sup>, 3.8% of patients with alcohol dependence ( $n = 79$ )<sup>11</sup>, 2.1% to 5% of individuals with Pathological Gambling<sup>12 13</sup>, and 24% of those with bulimia<sup>14</sup>. Some health initiatives have highlighted the importance of understanding gender differences<sup>15</sup>. Females outnumber males at a ratio of 3:1<sup>1 4 5 6</sup>. In clinical samples, approximately two-thirds of KL patients are women<sup>7 16 17 18 4</sup>.

Other ICDs like PG are more common in men<sup>19</sup>. Men with PG are typically more likely than affected women to be young, single and living alone without children<sup>20</sup>. Whereas male gamblers report advertisements as eliciting urges to gamble, female gamblers more frequently report feelings of boredom or loneliness as triggers<sup>17 21</sup>. The pathophysiology of KL is unknown. Psychoanalytic theories link compulsive stealing to childhood trauma and neglectful or abusive parents and stealing may symbolize repossessing the losses of childhood<sup>1 5</sup>. KL has also been linked to psychosexual issues such as sexual repression and suppression<sup>1 5</sup>.

KL may also be regarded as a form of addictive behaviour and has been shown to be associated with other substance use disorders (e.g., alcohol and nicotine)<sup>22</sup>. Naltrexone, an opiate antagonist used to treat addictive behaviours, has been shown to reduce KL symptoms<sup>23-25</sup>. Impulse control disorders can manifest as neuropsychiatric sequelae of head trauma and traumatic brain injury<sup>26</sup>. New onset KL has been reported in two cases of closed head trauma<sup>27</sup>. Brain disorders, such as epilepsy<sup>28</sup> and fronto-temporal dementia have been reported to cause KL.

KL is rarely brought to medical attention voluntarily.

Patients usually present themselves for treatment by legal mandate due to repeated shoplifting. KL behaviour carries serious legal consequences: approximately 2 million Americans are charged with shoplifting annually<sup>29</sup>. If KL accounts for 5% of these, this translates into 100,000 arrests. Prior studies of clinical samples of individuals meeting criteria for KL have reported that 64-87% of individuals with KL have been arrested<sup>7 16</sup>. These same studies of clinical samples further indicate that 15-23% of individuals seeking treatment for KL have spent time in jail or prison as a result of shoplifting<sup>7 30</sup>. These high arrest and incarceration rates not only result in emotional distress, but also cause substantial financial costs to the economy and legal system<sup>4</sup>. While research has focused on how pathological gambling, another impulse control disorder with phenomenological links to KL<sup>31</sup>, contributes to unlawful behavior<sup>32 33</sup>, there has been limited research focusing on how KL relates to criminality.

Being ICDs very threatening, the assessment of social dangerousness once the individual enters the judicial circuit is frequent. In these cases, in order to assess the potential of recurrence, subjects undergo psychiatric evaluation. The question to the expert is to evaluate the risk of recurrence of the offender before the same is returned to the community. For this reason it is very important for the evaluator to have theoretical and practical references on the evaluation criteria of dangerousness and possible treatments in similar cases.

In order to elicit thought about these problem, we describe the interesting case of a subject that has numerous ICDs with KL as the disorder most recently manifested. The social dangerousness will be evaluated considering the evolution of the clinical symptomatology that, in this case, has increased in levels.

This paper aims to focus on the possible beneficial impacts of a targeted treatment strategy on social dangerousness for individuals affected by ICDs to avoid disorder features evolution and to lower the rate of recurrence of the offender.

## Case report

The case is a 52 years old male, affected by compulsive behavior (cocaine abuse, PG, KL) from early adolescence. He came to our attention as a result of legal consequence for repeated theft.

**Familiar case-history:** father is a retired executive officer, described as shy and absent due to his tight working schedule. The patient has developed an almost obsessive competition towards the father, even considering the latter a figure of reference. Mother is an ex secretary, housewife at present, whom the patient defined as "perfect". He is the first born of three siblings. He excluded neuro-psychiatric disorders in his ancestors.

**Physiological and pathological case-history:** his psychosomatic growth was regular. Since he was 18 until about 40 years old, he regularly inhaled about 1-2 grams of cocaine a day, and then he passed to a sporadic use of the substance. In remote pathological case-history there emerge two previous car crashes, at 16 and 21 respectively, after which he suffered from cranial traumas with no relevant consequences. No hospitalizations and/or other kinds of pathologies were mentioned. Educational and working case-history: at 19 he got a diploma in classical studies with the highest marks, and then at 29 he graduated in electronic engineering with mark 103/110. From 14 to 17 he played football in regional teams. From 29 to 32 he worked at the university. SG was then hired in an international company as manager. He resigned at 40 after about one and a half year of leave, concentrating on private practice.

**Sentimental experiences:** the patient reported he had been living with one woman for 6 years, and then with another (up to now) who had a 19 year-old son from a previous relationship, and with whom he has a 6 year-old daughter.

**Psychiatric case-history:** it started when he was about 18 with an impulse control disorder, inhaling 1-2 grams of cocaine every day. At 20, the patient started gambling, introduced by a friend, till it became a real obsession at about 28-29. He reported that gambling was not a pleasure, but an irresistible impulse. He could not bear waiting and wanted to know immediately whether he had won or lost, preferring the "mechanical" games (slot machines). The patient showed both compulsive disorders until he reached 40. Later, in 2001-2002, he suffered from depression for about two years. During this phase, he developed an attraction towards shoplifting, after noticing a woman who had put two chunks of cheese in her bag in a supermarket. In such occasion the patient remembers he felt a strong strain thinking about the risk that the woman had taken and about the humiliation she could have undergone if caught. In about a week's time he started shoplifting. His KL behavior changed over time: at the beginning, in fact, he preferred taking things of small value, big things that did not interest him and that he hid badly with the intent of being caught. If this did not happen, he went back to the place and got other objects until the guards or the clerks noticed him. Later though, he started choosing more valuable objects, often breaking the anti-theft badges with a tool. The patient voluntarily started psychotherapy and drug treatment in 1999 on a three days a week basis for two years. He got over his gambling compulsion in 2001.

On the contrary, the drugs prescription (Haloperidol 2 mg/die) gave scarce results on KL behaviour. In 2003, at the appearance of KL, he spent 4 months in a psy-

chiatric clinic with no relevant results. At the same time he was treated by his psychologist and by a health care assistant of reference. At present, the patient is treated by a psychiatrist at public Mental Health Department and he stopped stealing (8 months without episodes). The same doctor told him, in case of compulsion, to write his emotional state in a diary describing the feeling. This helps the patient to understand the reasons that lead him in that direction and to acquire a wider awareness of his actions. Nevertheless, the patient reports about two episodes in which he stole some goods (a pair of shoes and two t-shirts), but that he then paid with no consequences after clarifying the issue with the sales manager. Currently he is taking anxiolytic treatment (Lorazepam, 2,5 mg x 3), antidepressant treatment (Amitriptyline, 30 mg in the morning and 40 mg in the evening) and antipsychotic treatment (Olanzapine, 10 mg). A MRI exam gave negative results for pathological any reports.

**Judicial history:** his first jail detention was in 2007 for six months, the last and most recent in 2012 for about 100 days. At present there are 27 proceedings against the patient.

**Forensic-psychiatric evaluation:** the patient underwent three different reports, the first two in 2008 in relation to aggravated theft of three chunks of Parmesan cheese and one chunk of ham, as well as escape from house arrest, and the third in 2010 for having stolen clothing items for a commercial value of 569,00 Euros. All the reports ended by recognizing the patient a mental semi-insanity and the acknowledgement of social dangerousness. This last aspect in particular was evaluated in two of the three reports, considering the reiteration of the offence probable in consideration of his clinical history. A therapeutic support was then suggested in a local Mental Health Centre, i.e. therapeutic community, with drugs and psychological treatment. In the third report, on the contrary, reference was made regarding internal and external predictability indicators, with possibility of a potential new feedback compliance to specific psycho-pharmacological treatment, carried out in a therapeutic community specialized for the treatment of obsessive-compulsive disorders.

## Discussion

The case is an example of ICD in which behaviours have changed over time and were resistant to psychotherapy practiced; the patient was also treated with low doses of drugs. He has transitioned from substance abuse, to PG, and then to KL. These behaviours have produced familiar, economic and legal consequences for the subject who, especially since he began to manifest KL, was involved in many court cases, that led him to serve periods of restriction.



The history showed two previous cranial trauma, without apparent consequences to neuroimaging and neuropsychological function measured with neuropsychological tests. The assessment has therefore focused on the psychiatric profile. This showed the presence of mood swings, narcissistic traits of personality and obsessiveness.

The clinical picture seems to have developed very early in the life of the individual and seems to recall the OCD spectrum.

Kleptomania has been linked heuristically to three groups of disorders in efforts to explore potential treatment approaches: (1) the “affective” spectrum; (2) the “obsessive-compulsive” spectrum, and (3) the “impulse control” disorders. Hudson and Pope proposed the existence of “affective spectrum disorders” and asserted a relationship between mood disorders and kleptomania, OCD, eating disorders, and panic disorder<sup>34 35 36</sup>. A link between KL and affective disorders was supported by the high rate of comorbid affective disorders in KL patients. Joined by McElroy, these authors based their theory on: (1) phenomenological similarities, including harmful, dangerous, or pleasurable behaviours, impulsivity, and affective symptoms and dysregulation; (2) similar onset in adolescence or early adulthood and episodic and/or chronic course; (3) high comorbidity of KL and mood disorders, and similar comorbidity with other psychiatric disorders; (4) elevated familial rates of mood disorder; (5) possible abnormalities in central serotonergic and noradrenergic neurotransmission; and (6) response to mood stabilizers and antidepressants<sup>36</sup>. McElroy and colleagues<sup>7 35 37</sup> and Hollander and Wong<sup>38</sup> suggested that KL is associated to strong compulsive and impulsive features and hence should be considered as lying within the “obsessive-compulsive spectrum” along with pathological gambling, compulsive buying, pyromania, nail biting and trichotillomania.

According to this model, PG, KL and substance abuse share elements of both OCD spectrum and affective spectrum disorders, due to high comorbidity with mood disorders, to presence of compulsive and impulsive features, to relief from depression or manic symptoms, after stealing. In particular, KL and PG share typical features, such as repetitive or compulsive engagement in a behaviour despite adverse consequences, diminished control over the problematic behaviour, an appetitive urge or craving state before engagement in the problematic behaviour, and hedonic quality during the performance of the problematic behaviour.

Pharmacologically, the patient was treated with antipsychotics, antidepressants and anxiolytics in low doses. No specific treatment for compulsive spectrum appears to have been practiced. Because KL is as a form of Disruptive, Impulse-Control, and Conduct Disorder, so

far evidence suggests that the initial pharmacological treatment should be with serotonin-enhancers such as selective serotonin reuptake inhibitors (SSRIs). Among these, some case reports suggest the use of Fluoxetine, Paroxetine and Fluvoxamine<sup>7 39 40 41</sup>. Subsequent studies, however, did not confirm the adequacy of such therapeutic agents, but rather they put out their unsuitability as, paradoxically, themselves activating kleptomanic behaviour. Others studies suggest that lithium, valproate and topiramate can have good results in the treatment of KL<sup>42 43</sup>. Also, the use of opioid antagonists (naltrexone) gave good results, because of the possible relationship between KL and addictive disorders<sup>44</sup>.

The patient was treated with a course of Freudian analysis. Nevertheless, only cognitive behavioural therapy (CBT) has shown to be effective for KL<sup>45 46</sup> and PG<sup>47</sup>. Relying on the feelings of guilt, shame and helplessness experienced by the patient, cognitive behavioural therapy can help the patient to learn to relax, cope with stress, combat negative thoughts and prevent harmful behaviours. The CBT treatment for many ICDs is often composed of steps particularly focused on stress reduction skills and emotion regulation and distress tolerance skills<sup>48</sup>. In addition the patient could find support with other people who are trying to control impulsive behaviours (for example Gamblers Anonymous)<sup>49</sup>.

For what concerns legal medicine issues, there are interesting implications for the social dangerousness and, therefore, the opportunity to choose the specific safety measures. The assessment of social dangerousness must also take into account the dynamic and evolutionary characteristic of the disorder. In the present case, in fact, the disease originated as substance abuse, transformed into PG and after into KL. This suggests possible further development towards forms at greater risk (e.g. pyromania). It must be noted that, at the moment, drug treatment and therapeutic result are not suitable for a satisfying management of the “symptoms” of the subject.

It must be also added the fact that the risk assessment can't be based only on the consideration of individual psychopathological features, but it must also take into account social, environmental and cultural contexts in which the subject is inserted, potentially influencing the imbalanced behavioural, the lack of a specific and valid treatment by the psychiatric services and the availability of valid replacement or alternative solutions.

Based on these considerations a severe social dangerousness may be not recognized in the case subject, despite the objective risk he can repeat preceding illegal conducts and he reported to have tried two other thefts in recent months.

## Conclusions

The case suggests the necessity of targeted therapy

in KL, in order to contain the evolution of symptoms in other forms of ICDs. If KL is conceptualized as belonging to OCD spectrum disorders, then it would be logical to treat patients using the same psychopharmacological regimens that are known to be effective for OCD. Both KL and PG patients may benefit from the wealth of treatment options now available for mixed affective and obsessive states, based on the association of agents of different pharmacological classes, such as antidepressants (mostly SSRIs), antipsychotics, mood stabilizers.

The findings highlight the need for effective interventions within correctional settings and the importance of clinical interfacing with components of the legal system in the care of patients with ICDs. Hence the need to implement specific measures aimed at the rehabilitation of the subject and the recovery of his mental and social behavioural functions.

## Conflict of interest

None.

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## Undetected autism subthreshold spectrum as risk factor for suicidal gestures in adulthood: a case report

### Summary

*Autism Spectrum Disorder (ASD) has been recently highlighted as potentially related to a higher risk for suicide. ASD features are often under-recognized, especially in subjects with high level of functioning. We present the case of a 21-year-old man who attempted suicide jumping from the third floor of his home. The patient had been treated during the last 3 years for a Schizoaffective Disorder. Patient's history showed the presence of signs and symptoms belonging to the realm of ASD. We hypothesize that the long-lasting presence of ASD features (instead of the schizoaffective symptomatology) was a clinically significant (but unrecognized) component that ultimately raised the suicide risk.*

### Key words

Autism • Spectrum • Suicide risk

### Introduction

Autism Spectrum Disorder (ASD) includes different neurodevelopmental disorders characterized by social and communication impairments, restricted interests and repetitive behaviours<sup>1</sup>. These disorders are primarily expressed in childhood, with an onset around the age of 18 months. Due to brain plasticity, early interventions are crucial for having a chance of clinical improvement<sup>2</sup>. Unfortunately, mild autistic forms, especially those in patients with normal or above the average intelligence levels, remain unrecognized and untreated.

Recent research has demonstrated that suicidal attempts are frequent amongst patients with ASD, and that they occur more frequently in 'high functioning' than in 'low functioning' subjects<sup>3</sup>. However, the diagnostic relevance commonly deserved to depression, manic or mixed states, or psychotic symptoms occurring in these patients, may distract clinicians from the subtler ASD symptoms, even when related to the risk of a suicidal gesture.

At present, very little is known on suicide prevention in ASD patients. A recent review<sup>4</sup> highlighted how difficult it could be to prevent suicide among patients with ASD for several reasons: a) the inability of ASD subjects to describe their feelings and communicate their suicidal ideation to significant-ones; b) the confounding factor represented by the lifetime comorbidity for mood and psychotic disorders; c) the underestimation of ASD, especially in patients with 'high levels of functioning'.

We discuss the case of a 21-year-old patient with a diagnosis of Schizoaffective Disorder hospitalized in the inpatient unit of the Psychiatric Clinic of the University of Pisa for a severe suicidal attempt, who presented a subsided autism subthreshold spectrum throughout his entire lifespan.

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## Case report

Mr. A. is a 21-year-old Italian male, graduated at the high school at the age of 18 and currently living with his parents and three brothers. The patient referred to our Clinic after a severe suicide attempt, by jumping from the 3<sup>rd</sup> floor window of his house. The fall was around four and a half meters. The patient suffered several injuries: a fractured hip and arm with a rupture of the anterior branch of the obturator artery, pulmonary lesions with massive pleural effusion and cranial trauma.

His longitudinal evaluation revealed no family loading for psychiatric illnesses, with no complications at birth, pregnancy and delivery. No developmental disorder or delays were referred. He had a mild form of stuttering with difficulties in pronunciation of [l] and [r].

Mr. A.'s speech patterns were stilted and overly precise. He showed difficulties with comprehension of figurative speech and jokes. During childhood, he had no interest in socializing and making friends. He spoke with his brothers in a bizarre language with neologisms, making him difficult to understand. The patient manifested a selective interest towards classical languages and mythology to which he was strongly dedicated. During the last years of primary school, the patient had shown obsessive-compulsive symptoms, including hand washing, cleaning, checking things, repeating actions, hoarding. Moreover, he felt anxiety in social performances (such as speaking in front of the classmates). At home, he frequently had role disputes, especially with his mother, with poor adherence to rules, and severe difficulties when his expectations were disappointed. Several events of impulse dyscontrol were reported, mainly characterized by screaming and manifesting aggressive reactions towards his parents and brothers. According to relatives, such reactions were secondary to the need to give vent to his frustration and were predominantly impulsive, although in some cases, there were brief periods (approximately 30 minutes) of apparent calm between the disputes and the impulse dyscontrols. When attending the high school, he showed great interest in classic languages, such as Latin and Greek. However, he showed a worsening in 'emotional detachment', with reduced relational investment, and a 'formal' relationship style with peers. Mr. A. described an intense subjective difficulty in handling social situations, mainly due to an approach characterized by '*excessive moralizing attitudes*'.

At the age of seventeen, he described a subjectively stressful life event, namely, 'problems with academic performance'. Mr. A. had mood fluctuations, marked apathy, decreased energy levels, emotional lability and irritability, in comorbidity with obsessive rumination about his performance. In the subsequent months, he developed ideas of reference, persecution and suicidal ideation, with a first suicide attempt (drug ingestion).

The patient referred to a psychiatrist who prescribed lithium carbonate (600 mg/day) and risperidone (3mg/day), with no response, and Mr. A. was admitted to the emergency services for a total of 4 subsequent suicide attempts (with ingestion of drugs, shampoo and hydrogen peroxide).

In November 2016, after a dispute with his parents, Mr. A. attempted suicide again, jumping from a 3<sup>rd</sup> floor window of his house. He was admitted to the Intensive Care Unit and after stabilization of his clinical condition, he was moved to the Psychiatric Clinic.

The mental examination at admission revealed the patient was alert, partially amnesic and oriented, able to procure attention but with difficulty in maintaining it. Mimic and gesture were poorly represented, sometimes staring upwards. The most compromised aspect of language was prosody: the speech was monotonous and flat. He showed a depressed mood, with feelings of sadness, inadequacy and guilt, mixed with persecutory delusions. According to his relatives, during the last few weeks before the suicidal gesture, the patient had little social interaction with people outside his family and was most content when keeping himself occupied in activities such as playing the violin. In verbal interactions, he tended not to focus his gaze on the speaker's eyes but instead on the region around the mouth. Mr. A. noted that watching faces intently and reading lips allowed him to compensate for his difficulty in understanding emotions and body language. The staff of the Psychiatric Inpatient Section noticed also the occurrence of binge-eating behaviours (especially when parents were present), and a persistent hypersensitivity to every kind of physical stimulus (including wearing clothes) expressed with an incoercible restlessness. However, the neurological assessment was negative, including Electroencephalography (EEG) and Computerized Tomography (CT).

The patient met the DSM-5 criteria for Schizoaffective Disorder and during hospitalization he was administered valproate (1250 mg/day) and paliperidone (6 mg/day) with improvement of his mood and remission of the psychotic symptoms.

## Instruments

Mr. A. was evaluated by means of the Ritvo Autism Asperger Diagnostic Scale-Revised (RAADS-r)<sup>6</sup>, the Adult Autism Spectrum Self Report (AdAS SR)<sup>7</sup> and the Autism Spectrum Quotient of Baron-Cohen (AQ Adult)<sup>8</sup>. The Ritvo Autism Asperger Diagnostic Scale-Revised (RAADS-R) assists the diagnosis of adults with ASD<sup>6</sup>. The RAADS-R includes 80 claims of which 16 reverses and is separated in 4 subscales: Social interaction, Limited interests, Pragmatics and Sensory-motor. The AdAS-SR questionnaire includes 160 items exploring



the wide spectrum of manifestation of autism organized into seven domains: Childhood/adolescence, Verbal communication, Non-verbal communication, Empathy, Inflexibility and adherence to routine, Restricted interests and rumination, Hyper- and Hypo-reactivity to sensory input. Item responses are coded in a dichotomous way (yes/no) and domain scores are obtained by counting the number of positive answers. The AQ Adult is a widely-used questionnaire that provides a self-report measure of autistic traits to be used in adults with normal IQ. It comprises 50 questions, assessing 5 different areas: social skill, attention switching, attention to details, communication and imagination<sup>8</sup>.

The axis I diagnosis of Schizoaffective Disorder has been validated with Structured Clinical Interview for DSM-5 Disorders (SCID-I).

## Results

Mr. A. scores were as follows:

- RAADS-R: 162/240 (Autism Spectrum cut-off  $\geq 65$ );
- AdAS-SR: 87/160;
- AQ Adult: 34 (Autism Spectrum cut-off  $\geq 32$ ).

During the interview, a significant cognitive and behavioural rigidity emerged, as well as no interest in making friends and important difficulties in interacting with people, including clumsiness in interpersonal skills, prosody, and difficulties in understanding turn-taking in a conversation. In summary, the clinical evaluation and the scoring tests revealed an ASD, which as yet had never been diagnosed.

## Conclusions

This case report showed how high functioning in school might mask ASD symptoms present during childhood and adolescence of *'high-functioning subjects'*, as well as the onset of comorbid affective and psychotic symptoms subsequently covered the entire clinical presentation of ASD. However, we argue that the clinical mosaic of anxiety, depression, psychotic symptoms and subsiding long-lasting ASD features might produce a high-risk combination in this subgroup of patients leading to severe suicidal gestures. Indeed, the comorbidity issue is crucial in ASD<sup>9 10 11 12 13</sup>. ASD patients represent a *'unique challenge'*<sup>14</sup> for suicide prevention, since they

have difficulties in expressing feelings and they show high rates of comorbidity for mood, anxiety and psychotic disorders. Suicidality is described in 10-50% of ASD clinical samples<sup>15</sup>. Less is known about subjects who attempted suicide but who received a psychiatric diagnosis other than ASD. The suicide risk is high in ASD subjects also because they tend to choose more lethal methods than patients with depression<sup>16</sup>. Impulsive behaviours, characteristics of individuals with ASD, are raising suicidal risk in this population<sup>17 18</sup>. While for depressed patients, imagining the process to death when choosing lethal methods may cause conflict, thus helping to stop a suicide attempt, subjects with ASD are poor at this, due to a lack of active imagination<sup>19</sup>. Finally, stereotyped motor movements, including behaviours such as head banging, face slapping or biting, might complicate the clinical evaluation of suicide risk. These movements are often repetitive, seemingly purposeless, and show no clear intention to harm oneself. However, they can be correlated to a suicidal gesture, subjectively perceived as a complex stereotypy<sup>15</sup>.

Mr. A. described these phenomena. He reported that on several occasions he went out on the terrace or leaned out of the window and threatened to jump, as repetitive, automatic, almost routinely actions.

Another important challenge in ASD is related to the diagnostic issue of its prevalence in adulthood, considering that many patients with ASD, such as Mr. A., remain unrecognized<sup>20</sup>. The diagnosis of ASD in adulthood can be challenging because of a limited number of diagnostic tools specific to adulthood, the frequent lack of a detailed developmental history, and the frequent presence of comorbid conditions that are likely to complicate/cover the ASD phenomenology. Clinical diagnosis relies heavily on a detailed history of childhood and adult behaviours from informants, especially regarding verbal and social skills or repetitive behaviours.

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## Conflict of interest

None.

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