Identification of young people at "Ultra-High Risk" (UHR) of developing psychosis: validation of the "Checklist per la valutazione dell'esordio psicotico" for use in primary care setting

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Summary

Objective

The study aims to establish the concordant validity of the "Checklist per la valutazione dell'Esordio Psicotico" (CVEP) in an Italian help-seeking population. The CVEP is the Italian adaptation of the early detection Primary Care Checklist (PCCL), a 20 item tool specifically designed to assist primary care practitioners in identifying young people in the early stages of psychosis.

Materials and Methods

The checklist was completed by the referring practitioners of 102 young people referred to the "Reggio Emilia At Risk Mental States" Project (ReARMS) in the Reggio Emilia Department of Mental Health and Addiction. The concordant validity of the CVEP was established by comparing screen results with the outcome of the Comprehensive Assessment of At Risk Mental States (CAARMS), a gold standard assessment for identifying young people who may be at risk of developing psychosis.

Results

The simple checklist as originally conceived had excellent sensitivity (97.9%), but lower specificity (55.6%). Using only a CVEP total score of 20 or above as cut-off, the tool showed a substantial improvement in specificity (87%). Simple cross-tabulations of the individual CVEP item scores against CAARMS outcome to identify the more discriminant items in terms of sensitivity and specificity were carried out.

Conclusions

In comparison to other much longer screening tools, the CVEP performed well to identify young people in the early stages of psychosis. Therefore, the CVEP is well suited to optimize appropriate referrals to specialist services, building on the skill and knowledge already available in primary care settings.

Key words

Psychosis • Early Detection • Primary Care • Assessment

Introduction

The early detection of young people considered at risk of developing psychosis has been a research focus, particularly the last 20 years. Today, it is possible to reliably identify these young people [1] and also to provide interventions that can prevent or delay the onset of a first episode of psychosis [2], as well as minimise the distress associated with emerging symptoms [3]. However, translating the early detection 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 [4].

General practitioners are obviously central in this respect since they are often the first point of contact for these young people [5] and are generally involved before emergency services typically facilitated care [6]. Therefore, despite primary care has clearly an essential role in identifying potential clinically high risk subjects, relatively few screening instruments have been designed to be implemented in this setting. Indeed, gold standard assessment tools for identifying young people at risk of developing psychosis (e.g. the Comprehensive Assessment of At Risk Mental States) (CAARMS) [7], require high levels of specialist training and lengthy administration time, making them impracticable for use by busy primary care practitioners [4].

Although some shorter screening instruments have been developed, only the early detection Primary Care Checklist (PCCL) [8] has been specifically designed for use by primary care practitioners. Alternative screening tools, such as the self-report Prodromal Questionnaire (PQ) [9], have been shown to have good sensitivity and specificity in samples of young people referred to early detection clinics. However, the PQ is estimated to take

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around 20 minutes to be completed, making its feasibility for use in primary care settings questionable [4]. The Basel Screening Instrument for Psychosis (BSIP) [10] has a similar completion time and is designed for administration by specialist mental health rather than primary care practitioners. Other, much shorter, self-report screens, such as the Prime-Screen Revised (PS-R) [11], have been validated in samples comprising of psychiatric outpatients, arguably a different population than those targeted in the very early detection of young people at risk of developing psychosis [4].

The PCCL has been developed as a quick and easy to use tool administered by the primary care practitioners to help identifying young people who may be in the early stages of psychosis and to make quick, appropriate referrals to specialist services [8]. A problematic issue associated with screening for this population is that low level psychotic-like phenomena are allegedly reported in the general population as well [12]. What seems to distinguish these common experiences with experiences that imply individuals at risk of developing psychosis is the frequency of the experiences and the level of subjective distress associated with them [9]. With this issue in mind, the PCCL has been specifically designed for help-seeking populations (such as those contacting primary care because they are distressed by their experiences) and not as a population wide screen [4]. The "Checklist per la Valutazione dell'Esordio Psicotico" (CVEP) [13] is the Italian adaptation of the PCCL for experimental use (Table I).

Aim of the current study is to assess the concordant validity of the CVEP by comparing its outcomes to the outcomes of a standardised assessment for "at risk mental states", the CAARMS [7], in a sample of Italian young help-seekers referred to the Reggio Emilia Department of Mental Health and Addiction.

Materials and Methods

Participants

The concordant validity of the CVEP was tested in a sample of 102 individuals, aged between 13 and 35 (mean = 18.88 years; standard deviation = 6.09), who were referred to the "Reggio Emilia At Risk Mental States" Project (ReARMS), an early detection infrastructure developed under the aegis of the "Regional Project on Early detection in Psychosis" in the Reggio Emilia Department of Mental Health and Addiction [14]. The inclusion criteria were age 13-35, DUP (Duration of Untreated Psychosis) < 4 years, and CAARMS criteria for at ultra-high risk status (i.e. Attenuated Psychotic Symptoms [APS], Brief Limited and Intermittent Psychotic Symptoms [BLIPS], and/or State-Trait Risk). Exclusion criteria were those subjects suffering from mental retardation or organic mental disorder. The ReARMS team is specialised in identifying young people who may be at ultra-high risk (UHR) of developing psychosis as measured by the CAARMS.

All help-seekers entering the ReARMS protocol agreed to participate to the study and gave their written informed consent to the psychopathological assessment, composed – among others (see Raballo et al., 2014) [14] – by the CAARMS (approved Italian translation by Raballo et al., 2007) [15] and the CVEP. Relevant ethical and local NHS research and development approvals were sought for the study.

Over the course of the study, out of 102 subjects assessed by ReARMS team, 48 met CAARMS criteria for UHR status (Table II). The remaining 54 participants were below the threshold for being considered at risk of developing psychosis.

The CAARMS

The CAARMS is a semi-structured interview schedule designed to identify people who were at UHR of developing psychosis. It takes approximately 1-1.5 hours to complete and requires specialist training for its administration. It has been shown to have good-to-excellent concurrent, discriminate and predictive validity and excellent inter-rater reliability [7]. The CAARMS defines the following three sub-criteria and one or more need to be fulfilled to be considered at UHR of developing psychosis: 1) Vulnerability Group: family history of psychosis in a first-degree relative combined with 30% drop in functioning or chronic low functioning, as measured by the Social and Occupational Functioning Assessment Scale (SOFAS) [7]; 2) Attenuated Psychosis Group: sub-threshold psychotic experiences within the past 12 month; 3) Brief Limited and Intermittent Psychotic Symptoms (BLIPS) Group: criteria for psychosis met for less than 7 day at a time and ceasing spontaneously, i.e. without the use of anti-psychotic medication.

The ReARMS team routinely uses the CAARMS in the initial assessment to determine whether a subject meets UHR criteria. These assessments are conducted by specialised personnel including clinical psychologists and psychiatrists, who underwent collective supervision by the main author of the approved Italian adaptation (RA) [15], who was trained at Orygen YRC in Melbourne. Regular CAARMS supervision sessions and scoring workshops ensure the inter-rater reliability of these assessments.

The CVEP

The CVEP (Table I) is the Italian adaptation of the PCCL [8], that was originally translate by Feo and Raballo (2007) [13] as a part of overarching educational program

TABLE I.
The CVEP: "Checklist per la Valutazione dell'Esordio Psicotico" (from Feo and Raballo, 2007, modified) [13].

Item	Punteggio	Domande esplorative suggerite
1 punto ciascuno		Pensi di essere diventato più solitario e introverso o meno espansivo e loquace? Preferisci passare il tempo per conto tuo? Hai iniziato a ridurre i contatti col tuo gruppo di amici? Eviti di fare le cose in compagnia? Qualcuno ha mai detto di essere stato preoccupato per te? Sei insolitamente irritabile o arrabbiato o finisci per trovarti più spesso a litigare con parenti e amici? Recentemente, ti è capitato di esagerare nel bere? Hai fatto uso di droghe recentemente? Se sì, ricordi il tipo di droga e quando l'hai assunta l'ultima volta?
Trascorre più tempo per conto proprio	___	
Litiga con gli amici o i familiari	___	
La famiglia è preoccupata	___	
Consumo eccessivo di alcol	___	
Consumo di sostanze stupefacenti (cannabis inclusa)	___	
2 punti ciascuno		Come hai dormito recentemente? Com'è stato l'appetito? Hai avuto meno voglia di mangiare del solito? Per quanto tempo? Ti sei sentito giù o abbattuto? Ti sei sentito in ansia o in preda al panico? Per quanto tempo? Ti succede che diversi pensieri si mescolino nella tua mente, fai fatica a mettere ordine e organizzare i pensieri? Ti senti teso, agitato o inquieto? Ti senti irrequieto e reattivo o così sembri agli altri che te lo hanno fatto notare? Ti sei sentito meno interessato e coinvolto nel lavoro, nello studio, nelle attività quotidiane, nello stare con gli altri?
Difficoltà nel sonno	___	
Perdita di appetito	___	
Umore depresso	___	
Ridotta concentrazione	___	
Irrequietezza/agitazione	___	
Tensione o nervosismo	___	
Ridotto piacere, interesse o coinvolgimento nelle cose	___	
3 punti ciascuno		Hai la sensazione che la gente ti osservi o stia provando ad approfittarsi di te? A volte riesci a vedere, udire, avvertire cose che gli altri non possono percepire? Ti è capitato di sentire rumori o voci mentre eri da solo per conto tuo?
Sensazione di essere osservato o guardato dagli altri*	___	
Sentire o udire cose che gli altri non possono sentire*	___	
5 punti ciascuno		Ti è mai capitato di pensare che eventi o azioni di altre persone hanno un significato speciale, in qualche modo destinato a te? Hai mai la sensazione che gli altri ridano o parlino di te? O cogli messaggi che ti riguardano trasmessi dalla TV, giornali, radio, computer? (idee di riferimento) Hai qualche opinione o credenza che gli altri trovano inconsueta, peculiare o strana? (credenze bizzarre) Ti è mai capitato di avvertire che le persone o le cose intorno a te sembravano essere cambiate all'improvviso? Qualcuno, recentemente, ti ha fatto notare che hai detto cose inconsuete o confuse? Qualcuno nella tua famiglia ha mai avuto problemi psicologici o di salute mentale?
Idee di riferimento*	___	
Credenze bizzarre*	___	
Stranezza nel pensiero o nell'eloquio	___	
Affettività inappropriata o incongrua	___	
Stranezza nel comportamento o nell'aspetto	___	
Storia familiare di psicosi (parenti di primo grado) e aumentato carico di sollecitazioni o deterioramento nel funzionamento*	___	
Totale		

Se il punteggio globale > 20, valutare l'invio per un approfondimento in ambito specialistico. Se sono soddisfatti gli item contrassegnati con l'asterisco *, prendere in considerazione l'invio anche se il punteggio globale è < 20.

for general practitioners in the Reggio Emilia Mental Health Department, and later incorporated in the local early detection protocol (ReARMS) [14]. The PCCL is a 20-item checklist designed to facilitate the identification of young people who may be at an UHR of developing psychosis by the primary care clinicians. The checklist, which should take no longer than 5 minutes to be completed, includes items relating to general, psychological, and social functioning (e.g. "arguing with friends and family", "spending more time alone", "sleep difficulties" and "depressive mood"), as well as items relating to psychotic-like experiences such as hallucinations, delusions (e.g. paranoia and ideas of reference) and disorganized speech and thinking. Each checklist item has an allocated numerical value, ranging from 1 to 5, depending on its perceived relevance to overall psychosis risk. By summing the scores of each endorsed checklist item, a total score (ranging from 0 to 55) can be calculated for each individual. According to the CVEP/PCCL scoring rules, positive screen outcome for further assessment of psychosis risk can be reached in two ways: (a) a global score of 20 or above, or (b) endorsement of one or more of five specific key-items (13-16 and 20), conceived as indicative of psychosis risk even if observed in isolation (i.e. independently of the final CVEP/PCCL score ≥ 20). Those five key-items are designed to capture attenuated positive psychotic-like experiences (such as hallucinations, delusions and ideas of reference: e.g. "hearing things that other cannot" and "feeling that events or other people's actions have a special meaning for you") or state/trait vulnerability features (i.e. "first-degree family history of psychosis plus increased stress or deterioration in functioning"). Upon making a referral to ReARMS, referrers were asked to complete the CVEP before completing other scales.

Statistical analysis

Since we were interested in testing the screening features of the CVEP against CAARMS risk threshold, the sample was dichotomized as follows: UHR (+) (i.e. those who are above CAARMS threshold) and UHR (-) (those who are below such threshold). The two samples were compared on demographic, clinical, and psychopathological parameters. Categorical data were compared by chi-squared (χ^2) test with Yates' correction, while quantitative variables were compared using the Student's unpaired t-test. The concordant validity of the CVEP was tested using the CAARMS outcome as a gold standard. Finally, simple cross-tabulations of the individual CVEP item scores against CAARMS outcome to identify the more discriminant CVEP items were carried out. Prior to these analyses, all 20 items were coded in terms of a binary response of whether they were endorsed or not.

Results

Table II shows the demographic characteristics and screening outcomes of the sample as a whole and for

TABLE II.
Demographic data, CAARMS (UHR criteria) and screen outcomes.

	Total sample (n = 102)	UHR (-) group (n = 54)	UHR (+) group (n = 48)	χ^2/t
Gender (males)	48 (47.1%)	28 (51.9%)	20 (41.7%)	.41
Ethnic group (Caucasian)	89 (87.3%)	47 (87.0%)	42 (87.5%)	1.00
First language (Italian)	96 (94.1%)	52 (96.3%)	44 (91.7%)	.57
Age	18.88 (6.09)	18.94 (6.62)	18.69 (5.01)	.28
Years of education	11.25 (2.42)	11.19 (2.51)	11.33 (2.35)	-.29
Duration of untreated illness (DUI in weeks)	73.20 (5.74)	70.72 (6.24)	75.68 (5.47)	-.24
CVEP Screen positive outcome	71 (69.6%)	24 (44.4%)	47 (97.9%)	31.86*
CVEP Screen negative outcome	31 (30.4%)	30 (55.6%)	1 (2.1%)	
Only CVEP tot. ≥ 20				
Screen positive outcome	46 (45.1%)	9 (18.8%)	39 (81.3%)	45.14*
Screen negative outcome	56 (54.9%)	47 (87.0%)	9 (18.7%)	

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

the two subgroups (i.e. those meeting UHR threshold [UHR (+); n = 48] and those below the UHR threshold [UHR (-); n = 54]). No significant differences were found between groups in terms of gender, ethnic group, first language, age, years of education, and Duration of Untreated Illness (DUI), meant as the interval between the onset of a psychiatric disorder and the administration of the first pharmacological treatment.

Of the 48 UHR (+), 47 also had a CVEP concordant positive screen outcome (Table II). This means that in this sample the screening tool has an excellent sensitivity value of 0.979 (47/48). Table II also shows that of the 54 UHR (-), 30 had a concordant CVEP screen negative result, meaning that the CVEP has a 0.556 (30/54) specificity value.

Given the high sensitivity level and lower specificity of

TABLE III.
Cross tabulations for individual checklist (CVEP) item and corresponding CAARMS outcomes.

Checklist item/outcome		CAARMS outcome UHR (-)	CAARMS outcome UHR (+)	χ^2	Sensitivity	Specificity
1. Spending more time alone	no	25 (46.3%)	3 (6.3%)	18.50*	.938	.463
	yes	29 (53.7%)	45 (93.8%)			
2. Arguing with friends and family	no	28 (51.9%)	26 (54.2%)	.01		
	yes	26 (48.1%)	22 (45.8%)			
3. The family is concerned	no	17 (31.5%)	4 (8.3%)	6.97†	.917	.315
	yes	37 (68.5%)	44 (91.7%)			
4. Excess use of alcohol	no	45 (83.3%)	46 (95.8%)	2.93		
	yes	9 (16.7%)	2 (4.2%)			
5. Use of street drugs (including cannabis)	no	45 (83.3%)	43 (89.6%)	.39		
	yes	9 (16.7%)	5 (10.4%)			
6. Sleep difficulties	no	26 (48.1%)	19 (39.6%)	.48		
	yes	28 (51.9%)	29 (60.4%)			
7. Poor appetite	no	39 (72.2%)	37 (77.1%)	.11		
	yes	15 (27.8%)	11 (22.9%)			
8. Depressive mood	no	12 (22.2%)	4 (8.3%)	2.73		
	yes	42 (77.8%)	44 (91.7%)			
9. Poor concentration	no	16 (29.6%)	7 (14.6%)	2.49		
	yes	38 (70.4%)	41 (85.4%)			
10. Restlessness	no	18 (33.3%)	17 (35.4%)	.00		
	yes	36 (66.7%)	31 (64.6%)			
11. Tension and nervousness	no	11(20.4%)	14 (29.2%)	.64		
	yes	43 (79.6%)	34 (70.8%)			
12. Less pleasure from things	no	22 (40.7%)	8 (16.7%)	5.98†	.833	.407
	yes	32 (59.3%)	40 (83.3%)			
13. Feeling people are watching you	no	39 (72.2%)	15 (31.3%)	15.52*	.688	.722
	yes	15 (27.8%)	33 (68.8%)			
14. Hearing things that others cannot	no	46 (85.2%)	35 (72.9%)	1.65		
	yes	8 (14.8%)	13 (27.1%)			
15. Ideas of reference	no	49 (90.7%)	25 (52.1%)	17.18*	.479	.907
	yes	5 (9.3%)	23 (47.9%)			
16. Odd Beliefs	no	48 (88.9%)	27 (56.3%)	12.28*	.438	.899
	yes	6 (11.1%)	21 (43.8%)			
17. Odd manner of thinking or speech	no	49 (90.7%)	34 (70.8%)	5.39†	.292	.907
	yes	5 (9.3%)	14 (29.2%)			
18. Inappropriate affect	no	50 (92.6%)	35 (72.9%)	5.74†	.271	.926
	yes	4 (7.4%)	13 (27.1%)			
19. Odd behavior or appearance	no	47 (87.0%)	27 (56.3%)	10.59*	.438	.870
	yes	7 (13.0%)	21 (43.8%)			
20. First-degree family history of psychosis plus increased stress or deterioration of functioning	no	51 (94.4%)	40 (83.3%)	2.21		
	yes	3 (5.6%)	8 (16.7%)			

* $p < 0.001$; † $p < 0.05$. Frequencies, percentages, chi-squared (χ^2) test with Yates' correction, sensitivity and specificity values are reported.

the CVEP, further analysis of the collected data was taken to improve the sensitivity/specificity trade-off. When only a CVEP total score of 20 or above as CVEP cut-off was used (Table II), 39 subjects of 48 UHR (+) participants had a concordant positive screen outcome. This means that in this sample, the screening tool has a sensitivity value of 0.813 (39/48). Of the 54 UHR (-) participants, 47 had a concordant CVEP screen negative result, meaning that in this sample the screening tool achieves an excellent specificity values of 0.870 (47/54).
Simple cross-tabulations of the individual CVEP item scores against CAARMS outcome indicated the more discriminant items in terms of sensitivity and specificity (Table III). In comparison with UHR (-) participants, UHR (+) subjects showed significantly higher percentages of endorsement of the following nine CVEP item: "Spending more time alone", "The family is concerned", "Less pleasure from things", "Feeling people are watching you", "Ideas of reference", "Odd beliefs", "Odd manner of thinking or speech", "Inappropriate affect", and "Odd behaviour or appearance". The sensitivity and the specificity of each significant CVEP item are shown in Table III. However, although there was a relationship between any CVEP item score and outcome, the association was not always in the direction originally hypothesised. "Arguing with friends and family", "Excess use of alcohol", "Use of street drugs (including cannabis)", "Poor appetite", "Restlessness", and "Tension or nervousness", for example, are associated with lower risk of being CAARMS positive outcome.

Discussion

The aim of the present study was to assess the concordant validity of the CVEP, the Italian adaptation of the PCCL [8], comparing its outcomes to the outcomes of a standardised assessment for "at risk mental states" (the CAARMS) [7 15] in a sample of Italian help-seekers referred to the ReARMS project.
In the original version, the PCCL authors hypothesized that a total checklist score of 20 points or more, and/or the endorsement of any of the five "key indicator" items would indicate a screen positive result and therefore the need for a specialist assessment [4]. Adopting this approach in our sample, the CVEP was found to have excellent sensitivity of 0.979, indicating that it correctly identified approximately 98% of people who met UHR criteria according to the CAARMS and missed only 2% of these UHR participants. However, the CVEP showed a lower specificity value of 0.556, meaning that it incorrectly identified approximately 44% of individuals who did not meet UHR criteria as being in need of a specialist assessment. Such lower specificity has implications both in terms of rational resources allocation(i.e. avoiding unnecessary and lengthy assessment) and of clients confort (i.e. avoiding distress and delays in adequate pathways to care for non relevant assessments) [4].
These values are in line with those of other screening tools for this population, including the Prodromal Questionnaire[9] that revealed a sensitivity of 0.9 and a specificity of 0.49 in a sample of 113 young people referred to a specialist early detection clinic. Unlike the 92-item self-report Prodromal Questionnaire, the CVEP can be quickly administered by general practitioners, making it ideal for use in primary care settings. Moreover, our results are substantially in line with those showed in the PCCL original validation study [4], although CVEP sensitivity and specificity values are overall slightly higher.
However, given the lower specificity/high sensitivity trade-off of the CVEP (similar to the one reported in the PCCL validation) and the considerable sensitivity/specificity feature of some of the items (see Table III), a psychometric strategy to optimize the screening potential of the CVEP is to consider two subcomponents: (a) items with excellent sensitivity (between 0.833 and 0.938), such as "Spending more time alone", "The family is concerned", and "Less pleasure from things"; and (b) items with good to excellent specificity (between 0.722 and 0.926), such as "Feeling people are watching you", "Ideas of reference", "Odd beliefs", "Odd manner of thinking or speech", "Inappropriate affect", and "Odd behaviour or appearance". The three "sensitivity" items might be more useful in identifying young subjects with a positive CAARMS outcome (who met UHR criteria), whereas the six "specificity" items might be more important in identifying individuals with a negative CAARMS outcome (who did not meet UHR criteria).
Contrary to the initial hypothesis that the endorsement of a checklist item would be associated with a positive CAARMS outcome, some of the CVEP items, i.e. "Arguing with friends and family", "Excess use of alcohol", "Use of street drugs (including cannabis)", "Poor appetite", "Restlessness", and "Tension or nervousness", were more frequent in participants who did not meet UHR criteria and were more likely to be predictive of a CAARMS negative outcome rather than a CAARMS positive outcome. Furthermore, it is interesting to note that two of the five "key indicator" items (i.e. "Hearing things that others cannot" and "First-degree family history of psychosis plus increased stress or deterioration in functioning") were not discriminating for a CAARMS positive outcome.

Limitations

The current study has not included a follow-up methodology or a longitudinal design, and as such it is not possible to establish the predictive validity of the tool, i.e. how well the checklist identifies a subgroup of people who, although meet UHR criteria according to the CAARMS, are more or less likely to experience psychosis than previously researched samples.

The sample used in the present study was made up of young people referred to specialist early detection team and probably contained a much higher incidence of UHR cases than would be expected in the general population. Therefore, to confirm good to excellent sensitivity and specificity values here described, the continued evaluation of the tool performance directly in primary care setting would be the next logical step for future research in this area.

The checklist was completed by those people making referrals to the early detection centre and not by participants themselves, as is reflective of the checklist intended use. However, these referrers were Mental Health Professionals with specialist knowledge of psychosis. This fact may introduce possible bias in results. Therefore, a validation of the CVEP in a way that is representative of a primary care setting or other non-specialist organizations must be done. It will contribute to verify the current potential feasibility of utilisation in a number of non-specialist settings. In particular, the checklist seems to be easy and quick to administer as screening tool for use in primary care setting and by the wide range of organisations that may have contact with young people who are at risk of psychosis.

Finally, no multivariate analysis to evaluate items able to significantly discriminate between CAARMS positive cases *vs* negative ones was carried out.

Conflicts of interest
None.

Conclusions

The CVEP appears to be a useful screen for young people who may be at risk of experiencing psychosis, with an excellent sensitivity value of 0.979 and a lower specificity value of 0.556. Using only a CVEP total score of 20 or above as cut-off, the screening tool achieves a good to excellent specificity level of 0.870.

Simple cross-tabulations of the individual item scores against CAARMS outcome indicated that a subset of items might be promising to further improve the CVEP specificity value. The derivation of optimal methods of combining item scores in order to discriminate between CAARMS positives and negatives could be carried out applying a statistical exploratory analysis through the use of logistic regression models.

However, it is important to highlight that the CVEP is not a diagnostic instrument [4]. A screen positive result indicates only the need for a further specialist assessment and should not equated to a diagnostic evaluation or a marker for the initiation of any treatment. Also, the checklist is not intended to be used as population wide screen. It has been designed to build on the skills, strengths and experience that non-specialist practitioners already have, with the specific aim to help them deciding whether a referral is warranted and to bridge primary care with secondary care and specialist services.

Future research should focus on the continued evaluation of this checklist performance in primary care settings, particularly thinking about service configuration and ease of access to early intervention teams [4]. It would also be of interest to assess the predictive validity by analysing transition to psychosis in relation to checklist outcome.

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