



Universitat Autònoma de Barcelona

Attachment Styles and Psychosis:
Impact on Treatment Outcome in the Early
Stages of Psychosis

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PART 1

Introduction: Theoretical Framework

1. The attachment theory in adulthood

Adult model of attachment

Attachment theory defines attachment as the tendency of human beings to establish strong affectional bonds with others (Bowlby, 1977). Attachment behaviors are triggered by environmental threats, distress, illness, or fatigue; and are defined as any form of behavior that results in the individual regaining or retaining contact with his or her attachment figure (Bowlby, 1982). The quality of early experiences with caregivers influences in such a way that these attachment relationships result in internal representations or working models of the self and others that provide the prototypes for subsequent social relationships (Bowlby, 1980). Taking Bowlby's theory as a basis and following a line of investigation that examines attachment from the perspective of adulthood (Hazan and Shaver, 1987; Main et al., 1985), Bartholomew and Horowitz, (1991) proposed two types of internal working model: a model of the self and a model of others. The model of the self (also called "anxiety dimension" in its negative expression) refers to the extent to which an individual has internalized a sense of his own self-worth and consequently expects others to react to him in a positive way. This model is associated with the degree of anxiety and dependency experienced in close relationships. The model of others (also known as "avoidant dimension" in its negative pole) refers to the extent to which an individual expects that others might be available and provide support. This model is associated with the tendency to search for or avoid

closeness in relationships (Griffin and Bartholomew, 1994). Each of these internal working models can be divided into either positive or negative resulting in four attachment prototypes (see Figure 1.). *Secure* prototype has a positive model of the self and others, indicates a sense of worthiness plus an expectation that other people are generally accepting and responsive. *Preoccupied* prototype combines negative model of the self and positive model of others, indicates a sense of unworthiness with a positive evaluation of others, leading the person to strive for self-acceptance by gaining the acceptance of valued others. *Dismissing-avoidant* prototype is characterized by a positive model of the self and negative model of others, indicates a sense of love-worthiness combined with a negative disposition toward other people. Such people protect themselves against disappointment by avoiding close relationships and maintaining a sense of independence and invulnerability. *Fearful -avoidant* prototype has a negative model of the self and others, indicates a sense of unworthiness combined with an expectation that others will be negatively disposed. By avoiding close involvement with others, this style enables people to protect themselves against anticipated rejection by others (Bartholomew and Horowitz, 1991).

Figure 1. Model of adult attachment (adapted from Bartholomew and Horowitz, 1991)

		Model of Self (<i>Dependence</i>)	
		Positive (<i>Low</i>)	Negative (<i>High</i>)
Model of Others (<i>Avoidance</i>)	Positive (<i>Low</i>)	SECURE Comfortable with intimacy and autonomy	DISMISSING Dismissing of intimacy Counter-dependent
	Negative (<i>High</i>)	PREOCCUPIED Preoccupied with relationships	FEARFUL Fearful of intimacy Socially avoidant

Stability of attachment

A basic principle of this theory is that attachment relationships remain important throughout life (Bowlby, 1980; Ainsworth, 1989). Since the human attachment system organizes personal experiences within internal working models which filter and channel new experiences, an individual tends to follow the same trajectory throughout life (Mayseless, 1996). However, these working models can be modified as a result of an adaptation to new, interpersonally relevant life circumstances that are ongoing and emotionally significant (Bowlby, 1982), especially when there is a high degree of inconsistency between the models and actual experience (Crowell and Treboux, 1995). Therapy can represent for the patient a significant emotional experience capable of changing problematic working models (Crowell and Treboux, 1995). Bowlby suggested that the therapist's role is to provide a secure base for the client while disconfirming the client's problematic working models of relationships.

Investigations on stability of attachment style in therapy context have found significant stability over periods ranging from one week to two years, but the estimates were usually around .5 – .7 (Davila et al., 2003). This indicates that a substantial proportion of people, nearly 30%, report changes in their attachment style over time (Travis et al., 2001). In general, adult attachment models are only moderately stable in non clinical (Davila et al., 2003), clinical (Scharfe et al., 2002) and chronic schizophrenia samples (Berry et al., 2008). However, there is an increasing recognition in attachment literature that people are changing for psychologically important reasons rather than unreliability in measurement (Baldwin and Fehr, 1995; Davila et al., 2003). Attachment theory postulated that any changes in attachment representations will result

in fundamental changes in relationship schemas and self-concept (Bowlby, 1988), and that these changes will be directly related to treatment outcomes (Tasca et al., 2007).

Change of attachment in therapy context

Studies investigating changes of attachment styles during psychotherapy are very rare (Strauss et al., 2011). Previous investigations have reported improvement in attachment security and its association with better outcome in response to therapy for the treatment of like Borderline Personality Disorder (Travis et al., 2001) or Post Traumatic Stress Disorder (Muller and Rosenkranz, 2009). Likewise, studies had found therapy patients changed from insecure to secure attachment style (Travis et al., 2001; Lawson et al., 2006; Kilmann et al., 1999; Levy et al., 2006). However, Strauss and colleagues do not found this tendency after a time-limited psychological treatment of personality disorder (Strauss et al., 2011). From a different approach, others research informed the relationships between decreasing levels of attachment insecurity and better outcome (Muller and Rosenkranz, 2009; McBride et al., 2006; Tasca et al., 2007). In psychosis samples only one study explored change in attachment dimensions and change in symptoms and found correlations between increases in attachment anxiety and increases in general psychopathology and in hallucinations after six months follow-up (Berry et al., 2008).

2. Early detection and treatment of psychosis

In recent years, the aim of intervening in the early phases of psychosis has drawn great interest. The prodromal field has now been active for about 15 years. During this period, many of clinical research programs specializing in early detection and

intervention in the prodromal phase of psychosis have been created in Australia, North America, Europe and in Asia as well.

There are contributions from a diverse range of backgrounds: clinical psychiatry and psychology, neuroimaging, neurochemistry, neuropsychology, and epidemiology which indicated that the early course of psychosis is the most active stage of the overall disorder and most permanent consequences have its origin in this early stage (Häfner and Maurer, 2006). Also the delay in treatment correlates with unfavorable outcome (Norman and Malla, 2001). Thus, most focus on the prediction of onset of schizophrenia and related psychotic disorders for different purposes: (1) understanding the process of onset and (2) intervening prior to psychosis onset during the putatively prodromal phase. This latter aim is termed "indicated prevention" (Mrazek and Haggerty 1994), as it involves treatment of a person prior to a full threshold syndrome developing.

Considerable emphasis is currently focused on the early detection and treatment of traditionally called prodromal patients, or "at-risk mental states" (ARMS) for psychosis, as a way to improved the course of the disorder (Yung et al., 2004). One detection strategy of patients in ARMS for psychosis, with a big impact in research, is to register characteristic symptoms of late prodromal states (positive symptoms) while considering several risk factors for psychotic disorders, such as age, schizotypal personality and familiar antecedents of psychosis. Based in this strategy studies have developed criteria capable of predicting the onset of psychosis in 35-54% of help-seeking populations over a period of 12 months (Miller et al., 2002; Yung et al., 2004) even if these percentages have recently declined (e.g., Woods et al., 2009). Patients in ARMS for psychosis are clearly symptomatic and need help, even those who do not

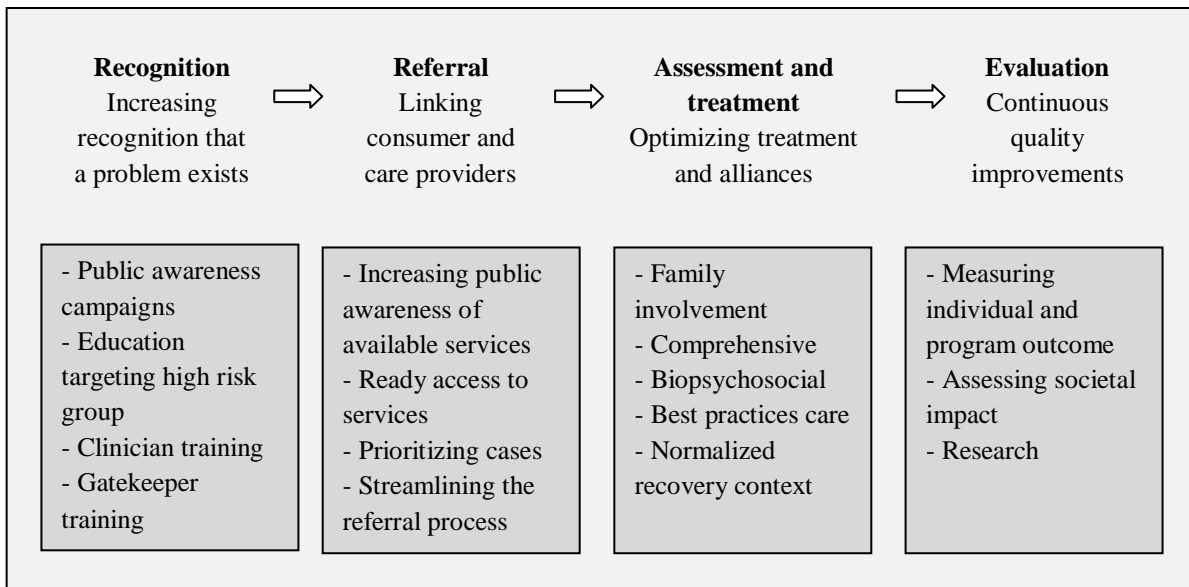
progress to psychosis tend to develop some kind of mental disorder (Yung, 2007). In fact, these patients are no different from those with First-Episode of Psychosis in terms of premorbid functioning, which suggests that the social deficits and difficulties are present long before the onset of psychotic symptoms (Addington et al., 2008).

Three possible aims can be identified for the early intervention in psychosis with ARMS patients: prevention of social decline/stagnation, prevention or delay in the progression of psychosis, and improvement in existing pre-psychotic symptoms (Bechdolf et al., 2006). Psychosocial interventions can have some advantages compared to antipsychotics for indicated prevention in ARMS patients (Bentall and Morrison, 2002); for instance, it is more acceptable and tolerable for patients as well as being less stigmatizing (Lauber et al., 2001) and less harming for those individuals who do not transition to psychosis. However, the goal of providing intensive psychosocial treatment as the best first line strategy requires the possibility of engaging patients and developing a reasonable working alliance. Engagement and trust are easier to develop in the pre-psychotic phase and they set the basis for subsequent therapeutic relationships (Bechdolf et al., 2006).

The detection and recruitment of ARMS patients for psychosis involved a series of strategies different from the traditional mental health care model. Because the prodrome is a new clinical constellation, recruiting symptomatic, help-seeking persons who are at risk for psychosis requires active outreach to potential health care-oriented referral sources. This includes efforts to educate these sources about the prodrome and training and maintaining staff to be available to triage calls and to conduct rapid, low threshold evaluations of potential referrals (McGlashan et al., 2007). In general, effective early psychosis intervention consists of multiple components that progress from recognition

and referral, through assessment and treatment and ultimately, to evaluation (Ehmann and Hanson, 2004). Each of these stages implicated a series of practices which are summarized in the Figure 2.

Figure 2. Fundamental components of early psychosis services (Ehmann and Hanson, 2004)



3. Interpersonal factors in psychosis: relation between attachment and psychosis

Role of the interpersonal factors in psychosis

Nowadays, there exist renewed interests in emotional, social and psychological mechanisms that may confer vulnerability to psychosis. Recently, attachment theory has been considered as a valid theoretical framework for understanding the influence of social, cognitive, interpersonal and affective factors in the development and course of

psychosis, which incorporates recent psychological models and enhances them (Berry et al., 2007). Current models of psychosis suggest that adverse environmental factors, especially interpersonal ones, have an impact on emotional and cognitive styles which, in turn, play an important role in the development and course of psychosis (e.g., Myin-Germeys and van Os, 2007; Read et al., 2005; Bentall and Fernyhough, 2008). It has been postulated that negative beliefs about the self and one's social environment play a fundamental role in the vulnerability for and maintenance of psychotic symptoms (Penn et al., 2004; Garety et al., 2001), particularly paranoia (Freeman et al., 2002). Evidence suggests that psychotic beliefs are more resistant to change if their content is consistent with negative beliefs about the self, others and the world (Bowins and Shugar, 1998). There is also evidence from a longitudinal study to suggest that low self-esteem is predictive of the onset of psychosis (Krabbendam et al., 2002). Likewise, avoidant strategies have been linked to both poor recovery following the onset of psychotic symptoms (Thompson et al., 2003) and to insecure attachment and negative self-evaluation in patients with psychosis (Tait et al., 2004). Other environmental factors, like the quality of interpersonal relationships and interpersonal functioning, have been associated with relapse and recovery after the onset of symptoms (Platts et al., 2002).

The findings referred to above can be related with recent applications of attachment theory to psychosis, which underscore that attachment embeds key elements playing a critical role in the vulnerability for and response to psychosis emergence, such as affective dysregulation, social cognition, and interpersonal behaviour (Berry et al., 2007). Insecure or disorganized attachment patterns are activated during periods of stress or threat perception, yielding the activation of nonadaptive affective, attentional and behavioural modes linked to negative internal working models. These patterns

could mediate the use of dysfunctional cognitive mechanisms and affective dysregulation which, probably in interaction, might lead to reality distortion (Read et al., 2009).

Findings on attachment and psychosis

Studies on attachment and psychosis have reported that the majority of patients with schizophrenia are classified as having either dismissing or fearful attachment prototypes (Dozier et al., 1991; Dozier and Lee, 1995). Likewise, in a large sample of patients with schizophrenia, Mickelson and colleagues (1997) found a high proportion of patients having avoidant attachment. Insecure attachment has also been linked to the onset of schizophrenia at an earlier age (Ponizovsky et al., 2007). A greater prevalence of the ambivalent prototype of peer attachment (similar to the preoccupied prototype) has been found in First-Episode of Psychosis samples (Couture et al., 2007). At symptom level, the avoidant attachment dimension has been associated with positive and negative symptoms (Ponizovsky et al., 2007), as well as paranoia, in patients with schizophrenia (Berry et al., 2008).

Presently there are few empirical studies investigating attachment styles in clinical samples (Goodwin, 2003). In the case of psychotic disorder, the majority of studies have been carried out with chronic psychotic patients, so the initial stages of psychotic disorder is a field in need of further study.

Aims of the study

The introduction presented provides a conceptual framework that integrates key elements of the theory of attachment in the understanding of psychotic symptoms and

their relevance in the treatment of early stages of psychosis, in turn putting in evidence issues not yet addressed in previous studies. The research presented in this thesis aimed to explore the impact of attachment on psychotic symptoms and functioning in a population at risk of psychosis defined under specific criteria and participating in specialized psychosocial intervention.

Detection of at risk mental state for psychosis in a specialized center for early attention to psychosis

As mentioned in the introduction, early intervention of psychosis, in specific, the recruitment of ARMS patients requires a trained referral system that allows precise and rapid referrals facilitating the early detection and treatment of these persons. The chapter 1 described the strategy applied by a community mental health services for the detection of people at risk of psychosis. Includes the description of referral system, inclusion criteria and sociodemographic and symptomatic characteristics of ARMS patients.

Attachment style and its impact on symptoms improvement in persons at-risk mental states for psychosis.

Several findings support the relation between attachment and psychosis. However the role that attachment plays in the early phases of psychosis remains poorly understood. The studies presented in Chapter 2 and Chapter 1 of the Annex addresses the impact of attachment styles on psychotic symptoms and functioning improvement in ARMS patients. Chapter 2 reports the impact of attachment styles in predicting symptoms and functioning improvement in patients in ARMS for psychosis after 6 months of psychosocial intervention. Chapter 1 of the Annex reports the impact of

change of attachment prototypes after one year of psychosocial treatment in ARMS patients and its relationship with symptom change beyond the effect of baseline severity.

In part 3, the summary of all studies will be given; the results will be discussed and both the theoretical and clinical implications will be addressed.

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PART 2

Empirical studies

CHAPTER 1: At-risk mental state (ARMS) detection in a community service center for early attention to psychosis in Barcelona¹

Abstract

Aim: To describe the strategy and some results in at-risk mental state (ARMS) patient detection as well as some of the ARMS clinical and socio-demographical characteristics. The subjects were selected among the patients visited by an Early Care Equipment for patients at high risk of psychoses, in Barcelona (Spain) during its first year in operation.

Methods: Descriptive study of the community–team relations, selection criteria and intervention procedure. Description of patient’s sociodemographic and symptomatic characteristics according to the different instruments used in detection and diagnoses, taking account of four principal origins of referrals: mental health services, primary care services, education services and social services.

Results: Twenty of 55 referred people fulfilled the at-risk mental state criteria, showing an incidence of 2.4 cases per 10 000 inhabitants. They were mainly adolescent males referred from health, education and social services. Overall, negative symptoms were predominant symptoms and the more frequent specific symptoms were decrease of motivation and poor work and school performance, decreased ability to maintain or initiate social relationships, depressed mood and withdrawal.

¹Quijada, Y., Tizón, J. L., Artigue, J. and Parra, B. (2010). At-risk mental state (ARMS) detection in a community service center for early attention to psychosis in Barcelona. *Early Intervention in Psychiatry* 4, 257–262

Conclusions: It is possible to detect and to provide early treatment to patients with prodromal symptoms if the whole matrix of the community –including the social services – contributes to the process. The utilization of a screening instrument and a two phase strategy – the second carried out by the specialized team – seems to be an appropriate approach for early psychosis and ARMS detection.

Key words: at risk mental state, detection strategy, early psychoses, first psychotic episode, prodromal symptoms.

INTRODUCTION

In general, the investigations focused on the identification of personal and social consequences of duration of untreated psychosis (DUP) suggest that the longest DUP are associated with an unfavorable disorder course^{1,2} with the consistent increase in costs that it implies,³ including, probably, the total economic costs of the disorder.⁴ Moreover, some studies conclude that the early course of psychosis is the most active stage of the overall disorder and most permanent consequences have its origin in this early stage.⁵ Consequently, it is a priority for mental health care to implement strategies designed to reduce DUP and to intervene as soon as possible. One of the key elements to achieve it is the detection of people at risk of psychosis, also called ‘at-risk mental state’ (ARMS),⁶ a derivation of the ultra high risk (UHR) concept. The second element is the early diagnostic of the beginning of the psychosis.⁷ Different strategies for ARMS identification have been developed with this intent. One UHR detection proposed strategy (i.e. UHR strategy)⁸ – with a big impact in research – is to register characteristic symptoms of late prodromal states (positive symptoms) while considering several risk factors for psychotic disorders, such as age, schizotypal personality and

familiar antecedents of psychosis. The UHR criteria have been adapted as ARMS concept by other research and clinical teams, such as the addition of a negative symptoms group⁹ and a basic symptoms group.¹⁰ Based on this premises, several strategies aiming to the detection of ARMS have been devised.^{5,9-11}

Early intervention in psychoses necessarily implies the development of strategies designed to improve the rates of detection in primary care, education and social services settings.¹¹ Also, awareness in the general population regarding psychosis and networking among different community services must be improved.¹² As an example, our Early Care Equipment for At-Risk of Psychosis Patients, the ECEARP, carries out 50 meetings each year (a 2 month meeting with each service, approximately) with all the community services with which it collaborates. One of the objectives of such shared meetings is to contribute to the training of professionals by encouraging the use of an instrument for the screening of high risk of psychosis individuals. A key step in the achievement of this objective is the progressive training of the referral professionals in the use of practical screening instruments to detect people at moderate risk. In that way, the ECEARP can work as consecutive filter inside the Primary Health, Social and Pedagogic Care System, because referral rates were higher among those professionals with a higher awareness of the disorder.⁵

In 2006 in Barcelona (Spain) the Early Care Equipment for At-Risk of Psychosis Patients started to work, focusing on early treatment and help for ARMS patients (EMAR in Spanish), for individuals with a first episode of psychotic (FEP) and for highly vulnerable children (HVC) due to an accumulation of risk factors of psychopathology. The aim of this study is to describe the strategy and the results of the ARMS detection programmes used and the clinical and socio-demographic

characteristics of those patients visited for the first time at the Service during its first year of operation.

METHOD

Setting

The team consists of two psychiatrists/psychotherapists, a psychologist/psychotherapist, a social worker, two nurses specialized in mental health and administrative staff. Its assigned population is 83 567 inhabitants from a central urban sector in Barcelona, from middle and low-middle classes and with a progressive increment of immigration. It works in a network base with the sanitary services (primary, secondary and tertiary, including mental health services), the education services (psycho-pedagogy attention teams and primary and secondary education centers) and the social services (preventive attention teams, primary social care attention, justice institutions for the protection of young in a risk situation) of its sector, in detection and treatment as well as at a preventive and formative level.

Participants

We selected consultants as ARMS/EMAR when they met the criteria proposed by the *European Prediction of Psychosis Study* (EPOS),¹³ with two modifications in such criteria: (i) for organizational reasons, the criteria concerning basic symptoms was disregarded and (ii) the age range was expanded from 14–30 to 12–56 years in order to improve truly early detections,⁵ and to detect the first manifestation of the delusional disorder, which can begin at the third or fourth decade of life. Consequently, each patient needed to have either *attenuated positive symptoms* (APS) as assessed by the *Scale of Prodromal Symptoms* (SOPS),^{14,15} *Brief limited intermittent psychotic symptoms* as assessed by the *Positive and Negative Symptoms Scale* (PANSS),^{16,17} or

family vulnerability, with functioning impairment as measured by the *Global Assessment Functioning* (GAF)¹⁸ (Table 1). The exclusion criteria used were common to the study EPOS: (i) diagnosis of a previous psychotic episode with a duration greater than 1 week; (ii) psychotic symptoms due to a substance abuse or to an organic mental disorder and (iii) previous diagnosis of mental retardation. Prior exposure to antipsychotic medication was not an exclusion criterion because those drugs are frequently administered to FEP and ARMS patients in our context (4/20 in our ARMS sample).

Instruments

The socio-demographic data was obtained from the ‘Catalan Health Institute’ Case Register [Instituto Catalán de la Salud] (ICS, unpubl. data, 2006). As screening instrument we used the *Early Recognition Inventory checklist (ERIRAOS)*, based on the *Retrospective Assessment of the Onset and Course of Schizophrenia and Other Psychosis*.¹⁹ That scale assesses the presence/absence of unspecific symptoms, of late prodromal and psychotic symptoms during the last 12 months, and its intensity variations, and the presence of some risk factors. We used a still non-validated Spanish version of the questionnaire, re-translated twice from English and German version.²⁰ As recommended by the EPOS criteria,¹⁰ we used the SOPS in order to assess APS.¹⁴ We used a Spanish version of the instrument with excellent predictive validity and high internal consistency.¹⁵ Intermittent psychotic symptoms were assessed using the Spanish version of the PANNS,¹⁶ validated in Spanish population¹⁷ and with moderate internal consistency in PANSS-P and high internal consistency in PANSS-N.

Procedure

The research protocol was approved by the Jordi Gol Ethics Committee, an organization supporting investigation in primary healthcare in Catalonia. The informed consent was signed by the participants and/or their parents. Professionals from the community network referred the patients when they scored 3 or more in the ERIRAOS and/or when doubts did exist concerning their risk of psychosis status in the information or shared group inter-professional sessions conducted by the EAPPP (more than 50 a year). In case that the instrument had not been fully administered it was completed in the first visit to our team. The participants scoring 3 or more in the ERIRAOS – or any positive answer in its second or third part – were administered the PANSS, the SOPS and the GAF in a second and a third clinical interview. DSM-IV-TR criteria were used to assess the presence of psychotic disorder and schizotypic personality. Organic conditions were ruled out based on physical exploration and somatic screenings (blood and urine analysis, Computed tomography and/or Magnetic resonance imaging, etc.). The possible outcomes of this process were (i) fulfilling the ARMS or FEP criteria, (ii) fulfilling the criteria for HVC (operationalized as having 10 or more risk factors, as determined by the Mental Health Items List (LISMEN in Spanish, an ad hoc checklist that is currently being validated) or (iii) not fulfilling any such criteria and therefore being referred to another specialized service in the mental health network. The LISMEN is a checklist of 87 items assessing risk factors for severe mental disorder throughout childhood and adolescence. It is applied in a semi-structured interview and covers four age groups: 0–2, 3–5, 6–11 and 12–17. Scores indicate risk factor presence or absence. The level of reliability is rating from 0.79 to 0.98.²¹

Statistical analysis

Analyses were conducted using SPSS for Windows 13.0.²² Descriptive analyses (i.e. mean, confidence interval, percentiles, frequencies and percentages) were used in order to describe the ARMS group characteristics.

RESULTS

Figure 1 summarizes the possible trajectories followed by participants along the different arms of the study, which was carried out from June 2006 to June 2007. The reference population size was 83 587 inhabitants and 2.4 ARMS cases per 10 000 inhabitants were detected.

Table 2 shows the general socio-demographic characteristics of the ARMS group. The ARMS Group was composed mainly of teenagers (mean age,15.8 years). There was a greater proportion of males and most participants had attained the secondary education level. A tenth of the participants were younger than 14 years old. They were evenly distributed across the three areas attended by the Team: health, education and social services. The distribution of participants across socio-economic levels showed no differences with the exception of a small dominance of the middle class. A minority were Latin-American immigrants.

Table 3 shows the baseline characteristics of the ARMS group. In the ARMS baseline, participants showed moderate difficulties in the GAF. They also showed negative symptoms and social impairment more frequently. In terms of intensity, negative symptoms were more severe than positive ones in the PANSS. In the SOPS's item 'Odd behavior or appearance' the mean intensity was low to moderate.

DISCUSSION

One of the objectives of this study was to describe the performance of the ARMS/EMAR people's detection strategy in our team and the result of its application after its first year running.

The ARMS incidence is obviously determined by the selection criteria used by the clinical team. Nevertheless, the consideration of such data is mandatory in public health units, although the identification of this information in published international studies poses a frequent challenge. Although it may seem that the ARMS incidence can be inferred from the transition rates to FEP and FEP incidence, the variability of the transition rates makes this impossible, even when similar strategies are used.²³ Our team estimated an incidence of 2.4 cases per year per 10 000 inhabitants, a higher incidence than other studies like the Cantabria's programme (Spain) on early psychosis, which detected one case per year per 10 000 inhabitants²⁴ using the criteria described by Yung et al.⁸ These differences may be attributable to differences in the age inclusion criteria (in our team: 12–56 years old; 14–30 with the UHR strategy), but in this 1-year study only a 10% of cases detected are between 12 and 14 years old and there are no patients over 30 years old. Another possible explanation for these differences might be that in the Cantabrian and other international studies, the group referrals came from the sanitary sector, whereas in our study this proportion accounted for slightly more than a third of the referrals.

Evidence shows that health and mental health professionals who are aware about psychoses detect psychosis at early stages and tend to carry out appropriate referrals.^{25,26} Nevertheless, when awareness strategies extend to other sectors – such as education services – there is a higher DUP reduction.¹¹ In our study, the inclusion of social services professionals in the awareness strategy contributed to detect an additional third

of cases, since individuals at risk of suffering from mental disorders are more likely to contact social services. Also, social services are more likely than health or education services to reach individuals with severe mental illness and social risk of isolation.²⁷

A considerable proportion (22 of 55) of individuals referred to the EAPPP met criteria for the ARMS group, to be added at nine FEP cases. This may be explained by the familiarity of the network with screening instruments as the ERiraos – which detects both negative and positive symptoms – and the expertise and formation of the staff. Because of that, and because the use of a screening instrument such as ERiraos might contribute to a higher accuracy of the referral process, completing the validation of the Spanish version of that instrument is a pressing issue.

Our results show that in our ARMS sample the four symptoms more frequent at baseline, as determined by the ERiraos, are negative symptoms and linked to social functioning impairment: depressed mood, reduction of motivation and poor work and school, decrease in the ability to maintain or start social relationships, and social withdrawal. These results are consistent with those from other studies showing that depression and social functioning impairment were the more frequent reasons justifying initial visits.²⁸ They are also consistent with other studies showing that negative symptoms are dominant in the early stages of the prodromal phase.^{29,30}

Our sample highlights an ARMS high frequency of negative symptoms and social impairment, together with a relative youth age (mean 15 years) and dominance of APS symptoms. This particular syndrome might be due to the fact that we were detecting ARMS further in time from the first episode of psychosis. Indeed, this would be a key difference with the UHR strategy and would increase the potential for preventive interventions because of the lower risk of diagnostic error between ARMS

and undiagnosed first episode of psychosis.³¹ On the other hand, this translates the problem into the possibility of a higher risk of ‘false ARMS positives’.³²

Although negative symptoms are important, they are also both unspecific and frequently seen in other types of disorders. Because of that, as suggested by Simon et al.,³³ it seems sensible implementing a two-stage detection strategy, with one stage using broader criteria (ERiraos) in a community setting, and a second stage using more specific criteria (ARMS) in a specialized setting.

ARMS cases in our study did receive specialized care delivered under the EAPPP programmes, based in the integration of biological, psychological and psychosocial therapies with different approaches, in a combination of individual, family and group care.³⁴ Two of 20 first cases developed a first episode of psychosis in a period of 1 year.

It is important to stress the descriptive nature of our study. Because of it, our findings do not bear the comparison of two strategies or their absence in similar populations, as a quasi-experimental study would.

Future works will have to compare the relative performance of different detection strategies using a proper control group to further expand the results presented here. Also, further development is urgently needed of resources, techniques and procedures for the improvement of the integration of the work carried out from different settings: health, education and social services.

Table 1. Inclusion criteria for the ARMS group of the EAPPP

<p>- Age: 12 to 56 years old.</p> <p>- Presence of any of the following conditions:</p> <p>A. Attenuated positive symptoms: Presence of at least one of the following SOPS symptoms with a score between 3 and 5 and an appearance of several times per week for a period of at least one week: Unusual thought content / delusional ideas, suspiciousness / persecutory ideas, grandiosity, Perceptual abnormalities / hallucinations, Disorganized communication, Odd behaviour or appearance.</p> <p>B. Brief limited intermittent psychotic symptoms: Presence of at least one of the following PANSS symptoms, score ≤ 4, that resolve spontaneously in 7 days and an interval between episodes with these symptoms of at least one week: Delusions, Conceptual disorganization, Grandiosity, Hallucinations, Suspiciousness.</p> <p>C. Familial risk plus reduced functioning: A change in mental state or functioning leading to a reduction of 30% or more on the GAF for at least one month within the last year compared to the highest level of previous functioning, plus at least one of the following risk indicators: 1- One first- or second-degree relative with a history of any DSM-IV psychotic disorder (not due to a medical factor or substance induced) (EPOS criteria)¹³, 2- A schizotypal personality disorder of the index person according to DSM-IV.</p>
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ARMS, At-risk mental state; EAPP; Equip d'Atenció Precoç als Pacients en risc de Psicosis; GAF, global assessment functioning; PANSS, positive and negative symptoms scale; SOPS, scale of prodromal symptoms.

Table. 2 Socio-demographic characteristics of ARMS group.

	ARMS group
Age, years: mean (IC)	15,8 (14,7-16,8)
Age range, years	12-20
Sex : (men:women)	12:8
Referrals source %	
Health	38,1
Education	33,3
Social services	28,6
Immigrants population %	20
Educational level %	
Primary	15
Secondary	80
University	5
Socio-economic level %	
Low-low	20
Low	20
Middle-low	20
Middle	25
Middle-high	15

ARMS, At-risk mental state.

Table 3. Baseline of at-risk mental state group

	ARMS
GAF: mean (IC)	50,8 (46,9-54,6)
ERiraos %	
Depressed mood	85
Reduction of motivation and poor work and school performance	80
Decrease in the ability to maintain or start social relationships	70
Social withdrawal	55
Manic and dysphoric symptoms	30
Disturbed body functions	30
Suspiciousness / distrust	28,6
Feeling of slowing down, reduced energy and affect	23,8
Odd behaviour	23,8
Rumination (without inner resistance)	14,3
Depersonalization and derealisation	14,3
Ideas of reference and paranoid symptoms	9,5
Preoccupation with mysterious things / unusual thought contents	4,8
(Pre-)psychotic thought disorders	4,8
Abnormal perceptions and hallucinations	4,8
PANSS mean (IC)	

Subscale positive	13,4 (11,3-15,5)
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Subscale negative	15,8 (13,2-18,3)
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Subscale general	35,6 (30,8-40,32)
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SOPS mean (IC)

SOPS Positive	6,3 (4,6-8)
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SOPS D1 (Odd behaviour or appearance)	2,9 (2,24-3,56)
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ARMS, at-risk mental state; ERIRAOS, Early recognition inventory: retrospective assessment of the onset and course of schizophrenia and others psychosis; GAF, global assessment functioning; PASS, positive and negative symptoms scale; SOPS, scale of prodromal symptoms.

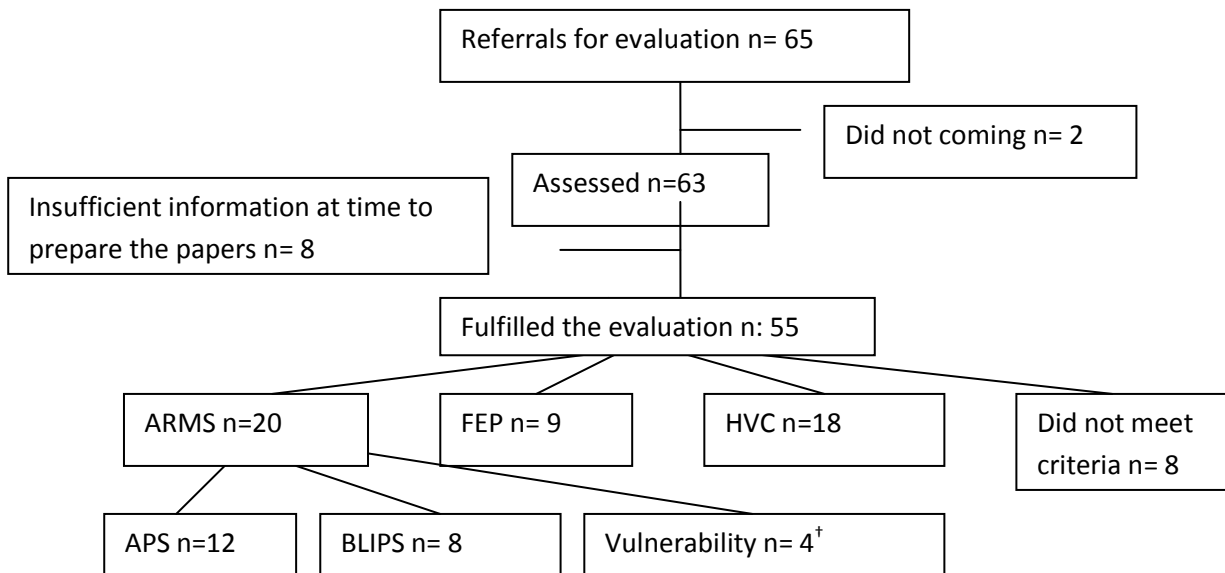


FIGURE 1. Numbers of referrals and evaluations of the team in the first year of functioning. (ARMS, at-risk mental state; FEP, first episode of psychosis; HVC, highly vulnerable children; APS, attenuated positive symptoms; BLIPS, brief limited intermittent psychotic symptoms). †This group meet criteria for APS or BLIPS group.

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CHAPTER 2: Attachment style predicts 6-month improvement in psychoticism in persons at-risk mental states for psychosis²

ABSTRACT

Aim: Insecure attachment may influence vulnerability to and outcome of psychotic symptomatology. The present study examined whether attachment style predicted symptom and functioning of at-risk mental state (ARMS) patients after 6 months of psychosocial intervention, over-and-above the effects of initial clinical severity and premorbid social adjustment (PSA).

Methods: Symptoms and functioning were assessed at baseline and 6 months later in 31 ARMS patients (mean age = 15.7). No patient received antipsychotic medication, but all engaged in intense psychosocial needs-adapted treatment. Clinicians (unaware to the aims of the study) rated attachment, PSA, symptoms, and functioning.

Results: Attachment was not related to baseline clinical severity. However, improvement in psychoticism was predicted by attachment (in particular by secure, preoccupied and dismissing) beyond the effects of baseline clinical severity and PSA. Secure attachment also predicted improvements in disorganization and functioning. Poor PSA predicted less improvement in disorganization and negative symptoms, but did not impact psychoticism.

Conclusions: The three attachment prototypes that predicted improvement in psychoticism (secure, preoccupied and dismissing) share the existence of at least one

²Quijada, Y., Tizón, J. L. , Artigue, J. , Kwapil, T. and Barrantes-Vidal, N. Attachment style predicts 6-month improvement in psychoticism in persons at-risk mental states for psychosis. *Early Intervention in Psychiatry* DOI: 10.1111/j.1751-7893.2012.00342.x

positive psychological model (either about self or others). It may be that the psychosocial intervention helped ARMS patients to disconfirm negative models and/or reinforce positive ones. Patients' attachment styles were not related to baseline clinical severity but impacted improvement of positive symptoms. These findings appear consistent with evidence that impaired self-esteem and dysfunctional self and others schemas constitute risk factors for reality distortion.

Key words: At-risk mental state, attachment, early psychosis, premorbid social adjustment, psychosocial treatment.

INTRODUCTION

Bowlby's attachment theory postulates that the quality of early experiences with caregivers contributes to internal working models that provide the prototypes for subsequent social relationships.^{1,2} Following a line of investigation that examines attachment from the perspective of adulthood, Bartholomew and Horowitz³ proposed two types of internal working models: first, the model of the self is associated with the degree of anxiety and dependency experienced in close relationships. Second, the model of others is associated with the tendency to search for or avoid closeness in relationships. These internal working models can be divided into either positive or negative expressions, resulting in four attachment prototypes: secure (positive model of the self and others), preoccupied (negative model of the self and positive model of others), dismissing avoidant (positive model of the self and negative model of others) and fearful avoidant (negative model of the self and others).

Studies found that the majority of patients with schizophrenia were classified as having either dismissing or fearful attachment prototypes.^{4,5} Mickelson and colleagues⁶ found a high proportion of schizophrenia patients with avoidant attachment. Insecure

attachment has been linked to the onset of schizophrenia at an earlier age.⁷ A greater prevalence of the ambivalent prototype (similar to the preoccupied prototype) of peer attachment has been found in first-episode psychosis samples.⁸ Avoidance attachment has been associated with positive and negative symptoms,⁷ as well as paranoia, in schizophrenia patients.⁹

The role of environmental factors in the development and course of psychosis has been increasingly demonstrated.¹⁰ Specifically, negative beliefs about the self and one's social environment play an important role in vulnerability for and the maintenance of psychotic symptoms in current psychosocial models of psychosis.¹¹ Associations between avoidant attachment and positive symptoms support cognitive models of psychosis that suggest that negative beliefs and social withdrawal play a role in maintaining positive symptoms,¹² particularly paranoia.¹³ Some investigations have demonstrated a link between psychotic symptoms and negative beliefs about the self and others.¹⁴ Avoidant strategies have been linked to both a poor recovery following the onset of psychotic symptoms,¹⁵ and insecure attachment and negative self-evaluation in psychotic patients.¹⁶ The quality of interpersonal relationships and interpersonal functioning has been associated with relapse and recovery after the onset of symptoms.¹⁷ All these findings seem to indicate that insecure attachment in adulthood, which is associated with negative beliefs about the self and others as well as with maladaptive methods for coping with stress, can increase the vulnerability to psychotic symptoms and have an adverse effect on the course of psychosis once symptoms are present.¹⁸

The majority of studies on attachment in psychotic disorders were conducted with chronic patients, so the role of attachment in the initial stages of psychosis remains

poorly understood. The early detection and treatment of prodromal patients or ‘at-risk mental states’ (ARMS) for psychosis is considered as a way to improve the course of the disorder,¹⁹ because delay in treatment correlates with unfavourable outcome.²⁰ In ARMS patients psychosocial interventions appear to offer advantages relative to antipsychotic medications.²¹ However, an intensive psychosocial treatment needs the engagement and a reasonable working alliance,²² two aspects easier to develop in the prepsychotic phase²³ and both related to attachment prototypes.^{16,24} So, it seems essential to know the role of patients’ attachment prototypes at this early stage and its impact on treatment outcomes.

Several studies link childhood attachment prototypes to children’s social and emotional adjustment throughout childhood.²⁵ In this sense, premorbid social adjustment (PSA) in psychosis and attachment prototypes are related and might share some behavioural aspects. Poor PSA is predictive of transition to the first episode of psychosis²⁶ and is associated with poorer clinical outcome in psychosis.²⁷ Therefore, it is important to explore whether attachment prototypes contribute to the prediction of outcome in the early phases of psychosis beyond the well-established role of PSA. To the best of our knowledge, there are no studies that have addressed this issue.

Using a prospective design, the aim of the current study was to explore whether attachment prototypes (defined at baseline, pretreatment) predict symptomatic and functional status of ARMS patients after 6 months of psychosocial intervention.

Also, the role of attachment over and above the effect of PSA and clinical severity is analysed. It is expected that PSA will be associated with symptoms and functioning at 6 months and that attachment will predict improvement over and above the effect of PSA. In particular, the secure attachment prototype is hypothesized to be predictive of

symptomatic and functional improvement, whereas insecure prototypes will be predictive of poorer recovery.

METHODS

Participants

Participants were recruited from a public service from Barcelona, Spain specializing in the early detection and treatment of psychosis, the Early Care Team for At-Risk of Psychosis Patients (EAPP) team.²⁸ Criteria for the ARMS groups were derived from the European Prediction of Psychosis Study proposal²⁹: age range between 12 and 35 years, presence of attenuated positive symptoms, brief limited intermittent psychotic symptoms or familial vulnerability plus reduced functioning (operationalization of criteria in Table 1). Exclusion criteria were diagnosis of a previous psychotic episode lasting for more than 1 week, psychotic symptoms due to substance abuse or to organic mental disorder, mental retardation and taking antipsychotic medication during the study period.

Informed consent was signed by the participants and/or their parents. The procedure was approved by the Jordi Gol Ethics Committee, an organism that supports research in primary health care in Catalonia. All patients who fulfilled ARMS criteria received a needs-based treatment^{30,31} during at least the 6-month follow-up.

Forty-eight patients met the ARMS criteria during the 30 months recruitment period. Three refused to participate, 11 did not complete the follow-up and 3 received antipsychotic medication during the follow-up period. No differences were found for symptoms and functioning at baseline between those who completed the study and those who did not. The final sample was composed of 31 patients with a mean age of 15.7 (SD = 3.1) years (range 12–25). The participants were all single, 74% were men

and 84% were in secondary school. Socioeconomic level ranged from very-low (13%), low (52%), middle-low (26%) to middle-middle (10%) level. During follow-up, 26 patients did not receive medications; two took antidepressant and three took anxiolytic medications.

Measures

Symptoms were assessed with the Positive and Negative Symptoms Scale (PANSS),^{32,33} using the subset of PANSS items proposed to tap symptom outcome by Andreasen and colleagues.³⁴ This includes psychoticism (delusions, hallucinatory behaviour and unusual thought content), disorganization (conceptual disorganization and mannerisms) and negative symptoms (blunted affect, social withdrawal and lack of spontaneity).

General functioning was evaluated with the Global Assessment of Functioning (GAF),³⁵ and PSA was assessed with the Mental Health Items List,³⁶ a checklist of 87 items assessing risk factors for severe mental disorder throughout childhood and adolescence. For this study, the 15 items tapping social functioning up to age 11 were selected. High PSA scores indicate poor adjustment. Internal consistency of the PSA was 0.79. The assessment of PSA at baseline was done using a multisource approach. Firstly, scoring was based on the information obtained in the comprehensive clinical record. Then, the clinician in charge was interviewed by a trained psychologist to collect missing data, and when information was still unavailable, the psychologist conducted an interview with relatives.

Attachment was assessed with the Relationships Questionnaire (RQ).^{3,37} The RQ is a single-item measure made up of four short paragraphs, each describing a prototypical attachment pattern: Secure, Fearful, Preoccupied and Dismissing. It has

been widely used in adult attachment research, including clinical samples of adolescents, and has been established to have good reliability and validity.^{38,39} Its stability is moderate but better when the scale is completed by an observer than by self-report and when using continuous rather than categorical ratings,⁴⁰ which is the case of this study. The primary clinician rated each participant on degree of correspondence to each prototype on a seven-point scale and chose which prototype best characterized participants.

Raters of all measures were unaware of the aim of the research.

RESULTS

Most patients had a predominant fearful attachment prototype (71%), followed by preoccupied (16.1%), dismissing (6.4%) and secure (6.5%) prototypes. The average PSA was 7.84 (SD = 4.05; range = 0–14).

Regarding change in symptoms and functioning from baseline to 6-month follow-up, 83.9% of participants either improved or remained the same on the psychoticism dimension; the same applied to 83.9% on the disorganization dimension, 71% on the negative symptoms dimension and 77.4% on the GAF. Paired-samples *t*-tests comparing each symptom dimension and functioning at baseline and follow-up indicated that the change was only significant for functional level, $t(30) = -2.40$, $P = 0.02$, indicating better functioning at 6 months. Table 2 shows descriptive data for symptoms and functioning at baseline and follow-up.

Table 3 presents the correlations of the attachment prototypes and PSA with the baseline measures of symptoms and functioning. None of these correlations were significant, indicating that attachment was unassociated with participants' baseline levels of symptoms and functioning.

Table 4 shows the results of the regression analyses conducted to evaluate the independent contribution of attachment in predicting change in symptom/functioning scores over and above the predictive value of baseline symptom/functioning levels and PSA. Baseline scores (symptoms or functioning) were entered at the first step, PSA was entered at the second step, and the four attachment variables were entered as a block at the third step in order to examine their independent contribution over and above the previous main effects. This provides a conservative test of the effect of attachment prototypes because their impact is examined after variance from all of the other predictors has been partialled out. Please note that for regression analyses effect sizes, expressed as f-squared values, a small effect is denoted by an f-square around 0.02, medium at 0.15 and large at 0.35. As seen in the earlier correlational analyses, symptoms/functioning baseline levels significantly predicted respective change scores at the first step. At the second step, PSA only predicted improvement in disorganization and negative symptoms over and above the effect of baseline status. Secure, preoccupied and dismissing attachment independently accounted for significant variance in the change in psychoticism symptoms across the 6-month period at step 3. For disorganization, secure attachment contributed significantly to explain improvement at follow-up. For negative symptoms, none of the attachment prototypes predicted change scores at 6 months. As for functioning, secure attachment made a significant contribution over and above the effect of baseline symptom levels and PSA. Note that among the attachment prototypes, the effect sizes were largest for secure attachment. Despite the fact that secure attachment was unrelated to baseline measures of symptoms and functioning, it significantly predicted improvement in participants across the 6-month period.

DISCUSSION

The main finding of this study is that attachment prototypes, particularly secure, preoccupied and dismissing attachment, predicted improvement in psychoticism beyond the effects of baseline symptom severity and PSA. There was no significant change in any clinical dimension at 6 months at group level, but significant associations between predictors and clinical and functional outcome did emerge. At first sight, the finding that preoccupied and dismissing prototypes also predicted amelioration of psychoticism might seem contradictory. However, a deeper examination reveals that these prototypes share with the secure one the existence of at least one positive working model (either of the self or others), suggesting that in order to benefit from treatment, at least in a relatively early stage, it is necessary to have some degree of a positive internal working model.

The protective therapeutic setting probably helps patients to strengthen the positive elements of the working models and thus the development of trust and engagement with the therapist. This might decrease the negative model of others and make the therapeutic interventions a valid source of personal confirmation, reinforcing equally a less negative model of the self. In this sense, a more negative model of the self (strongly related with self-esteem) has been linked to increases in hallucinatory behaviour,⁹ paranoia,¹⁴ risk of psychosis⁴¹ and maintaining the symptomatology.⁴² Consequently, feeling valued in psychotherapy can contribute to symptom reduction, especially paranoia and hallucinatory behaviour.

The secure emotional setting that therapy offers might also explain why secure attachment was predictive of improvement in disorganization and functioning. In therapeutic contexts, reinforcement of positive aspects of attachment could help to

contain anxiety, facilitating more coherent and organized verbal and behavioural expression and recovering contact with others in daily activities.

The possible therapeutic changes proposed earlier required that therapy represents a significant emotional experience⁴³ in which the therapist becomes a healthy attachment figure.⁴⁴ This therapeutic approach has been demonstrated to be effective at least in promoting emotional recovery and relapse prevention following a psychotic episode.^{45,46}

None of the attachment prototypes predicted improvement in negative symptoms. Negative symptoms might have a stronger genetic and neurodevelopmental basis compared with the stress-sensitivity and cognitive pathways leading to positive symptoms.⁴⁷ Indeed, negative symptoms show a greater relationship with neurocognitive deficits,⁴⁸ exposure to putative neurodevelopmental markers and poor PSA⁴⁹ than positive symptoms. In addition, no treatment appears to substantially work when negative symptoms are narrowly defined,⁵⁰ which is the case of this study.

Poor PSA was predictive of less improvement in negative symptoms and disorganization. It is well known that poor PSA is a powerful predictor of poorer treatment outcome,²⁷ especially for severity and persistence of negative symptoms in first episode psychosis (FEP) samples.⁵¹ The specific relationship between disorganization and PSA has been less explored; however, it has been proposed that the outcome of negative symptoms and disorganization are more likely to be influenced by longer-term characteristics such as premorbid adjustment and therefore may not be as responsive to effects of early intervention.⁵² From the attachment framework, these results can be associated with the establishment, early in life, of predominantly negative internal working models of the self and others, which can lead to interpersonal problems

such as social inhibition that remain throughout development and might favour the emergence of psychotic symptomatology in conjunction with other risk factors.

The slight symptomatic change after 6 months detected in this study might have been influenced by using the PANSS as a follow-up instrument, as it might be inappropriate for measuring symptomatic change in prodromal samples.⁵³ On the other hand, the predominance of low socioeconomic status in our sample, related to living in a densely urbanized sector, might be impacting on living conditions, generating a flow of constant stressful situations that limit the impact of the therapeutic intervention. Of note, these factors have been associated with a high presence of psychotic symptoms and a greater risk of psychosis in epidemiological studies and vulnerable samples to psychosis.⁵⁴⁻⁵⁸ However, the *maintenance* of symptomatology in prodromal samples, not its *deterioration*, is in itself relevant at a clinical level, especially when dealing with ‘nuclear’ symptoms of schizophrenia that have not been treated with antipsychotic medication. According to various investigations, between 35% and 54% of ARMS cases detected using criteria similar to this study make the transition to FEP in 1 year,^{19,59} even if these percentages have recently declined (e.g. Woods *et al.*⁶⁰). Therefore, the slight symptomatic change might indicate that a brief psychosocial treatment acts as a brake on the exacerbation of symptoms, thereby maintaining symptomatology at entry level.

This exploratory study contributes to the understanding of psychotic symptomatology within the framework of attachment theory, thereby continuing efforts already begun.^{18,61} However, to the best of our knowledge, this is the first study on the potential impact of attachment on psychosocial interventions in ARMS patients, with encouraging results regarding the reduction and stagnation of subclinical levels of

psychotic symptoms in help-seeking ARMS patients. It suggests that knowing the patient's attachment prototype can help in planning and tailoring therapeutic objectives and intervention strategies.

The conclusions of this study must be considered taking into account their limitations. The RQ has been mainly applied in relation to specific others and less as a measure of general attachment (which was our approach), although it is one of the most extensively used measures with large validation studies. Also, in the evaluation of attachment prototypes the assessment of the therapist was considered. This was done to avoid a potential bias in patients' self-report due to the current clinical state. Future studies should investigate the convenience of using patients' self-report or a combined approach, as well as taking into account the attachment prototypes of the intervening professionals, because these affect the relationship with patients with psychosis.^{62,63} Finally, in order to prove the assumption that symptomatic improvement reflected change in internal working models, this ongoing project is monitoring changes in attachment with repeated measures over time.

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Table 1. Inclusion criteria for At-risk mental state participants.

<p>Presence of any of the following conditions</p> <p>A- Attenuated Positive Symptoms: Presence of at least one of the following symptoms assessed by Scale of Prodromal Symptoms with a score between 3 and 5 and an appearance of several times per week for a period of at least one week: unusual thought content / delusional ideas, suspiciousness / persecutory ideas, grandiosity, perceptual abnormalities / hallucinations, disorganized communication, odd behaviour or appearance.</p> <p>B- Brief Limited Intermittent Psychotic Symptoms: Presence of at least one of the following symptoms evaluated with the Positive and Negative Symptoms Scale, score equal or more than 4, that resolve spontaneously in 7 days and an interval between episodes with these symptoms of at least one week: delusions, conceptual disorganization, grandiosity, hallucinations, suspiciousness.</p> <p>C- Familial risk plus reduced functioning: A change in mental state or functioning leading to a reduction of 30% or more on the GAF for at least one month within the last year compared with the highest level of previous functioning, plus at least one of the following risk indicators: 1- One first- or second-degree relative with a history of any DSM-IV psychotic disorder (not due to a medical factor or substance induced), 2- A schizotypal personality disorder of the index person according to</p>
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DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; GAF, Global Assessment of Functioning.

Table 2. Descriptive data for symptoms and functioning at baseline and 6-month follow-up

	Baseline		Follow up	
	Mean (SD)	Range	Mean (SD)	Range
PANSS Dimensions				
Psychoticism	4.89 (2.58)	3 – 13	4.74 (2.06)	3 – 11
Disorganization	3.97 (2.01)	2 – 10	3.77 (1.56)	2 – 7
Negative symptoms	7.87 (2.93)	3 – 15	8.06 (2.82)	3 – 14
GAF	46.5 (10.7)	25 -61	51.5 (8.3)	40 - 65

GAF, Global Assessment of Functioning; PANSS, Positive and Negative Symptoms Scale.

Table 3. Pearson correlations of attachment and premorbid social adjustment with baseline measures of symptoms and functioning.

	Secure Attachment	Preoccupied Attachment	Fearful Attachment	Dismissing Attachment	Premorbid Social Adjustment‡
Psychoticism baseline	-0.03	-0.30†	0.01	-0.01	-0.13
Disorganization baseline	-0.05	0.13	-0.31	0.13	-0.06
Negative symptoms baseline	-0.09	-0.17	-0.24	0.00	-0.03
GAF baseline	0.15	0.26	-0.22	-0.01	-0.18

†Medium effect sizes indicated in **bold font**

‡High premorbid social adjustment scores reflect worse adjustment.

GAF, Global Assessment of Functioning.

Table 4. Impact of attachment prototypes on change in symptoms and functioning after partialing baseline symptoms and premorbid social adjustment

Criteria	Step 1			Step 2			Step 3								Total R^2	
	Baseline Symptoms			PSA‡			Attachment Prototypes									
							Secure		Preoccupied		Fearful		Dismissing			
	β	ΔR^2	f^2 †	β	ΔR^2	f^2	β	f^2	β	f^2	β	f^2	β	f^2		ΔR^2
Change in:																
Psychoticism	0.63***	0.390	<i>0.64</i>	-0.24	0.058	0.11	0.48**	<i>0.44</i>	0.30*	<i>0.21</i>	0.12	0.04	0.28*	<i>0.20</i>	0.204*	0.652***
Disorganization	0.65***	0.398	<i>0.66</i>	-0.33*	0.105	<i>0.21</i>	0.33*	<i>0.20</i>	0.24	0.14	0.18	0.07	-0.03	0.01	0.124	0.627***
Negative symptoms	0.51**	0.260	<i>0.35</i>	-0.36*	0.130	<i>0.21</i>	0.23	0.07	0.13	0.03	0.14	0.03	-0.17	0.05	0.092	0.481**
Functioning	-0.72***	0.521	<i>1.09</i>	-0.14	0.020	0.04	0.47**	<i>0.55</i>	0.10	0.03	0.03	0.00	-0.09	0.03	0.193**	0.734***

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

†Medium effect sizes (f^2) indicated in **bold font**, large effect sizes in ***bold and italicized font***. Note that betas and effect sizes indicate the effect when all variables at the current and previous steps are entered into the model.

‡High scores reflect worse adjustment. PSA, premorbid social adjustment.

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PART 3

General Discussion

As mentioned, the field of practice and research on early identification and intervention in psychosis has provided direct evidence for the value of early recognition efforts from the past 15 years. One priority task is the identification of individuals at a clinical phase when first symptoms and/or impairments emerge, the so called ARMS patients. Consistently, different strategies have been proposed to detect these persons, however the goal of all them is the same: to identify symptoms and signs in combination with others risk factors that enable the prediction of the onset of psychotic disorder in the near future. Despite this unique aim, the conversion rates from at risk state to first episode of psychosis (FEP) vary between 10% and 40% over 1–2 years depending on the strategy applied (Olsen and Rosenbaum, 2006). So, the ARMS incidence and the conversion rate to FEP are determined in part by the selection criteria used. In public health context such data are mandatory for distribution of resources and, although this information in published international studies poses a frequent challenge. Other key aspect in the determination of incidence and conversion rates and that is complementary to the ARMS criteria is the recruitment practices. An early psychosis service has to display at least two strategies for an efficient recruitment. First is necessary increase the recognition of the prodrome through education targeting high risk group, clinician training or education of the potential sources of referral. Second, it must favor the derivation systems increasing awareness of available services or streamlining the referral process among other recommendations (Ehmann and Hanson, 2004).

The chapter 1 (part 2) of this dissertation aimed the description and results of a detection strategy, both the selection criteria and recruitment practices of a community and public center specialized in early detection in psychosis in Barcelona, Spain. This study described entry criteria for ARMS patients based on the presence as “attenuated” psychotic symptoms that are present below the threshold of full psychosis, brief and self-limiting psychotic symptoms, or a significant decrease in functioning in the context of a genetic risk for schizophrenia. Such criteria were applied following international investigations. Also described the implementing of a two-stage recruitment strategy. The first stage implied an intense shared work with social, educational and health community services. As well, a screening instrument is used alongside other activities for the early detection of psychotic disorders in a community setting. This instrument allows to the network of professionals to do more precise referrals, and also to know which symptoms are the most distressing for the patient and have therefore led them to seek help. The second stage is carried out by the team which explored negative and positive symptoms, risk factors for psychosis, and the somatic examinations protocol, according to ARMS criteria. Applying this strategy is possible estimated a higher incidence than other studies like the Cantabria’s programme (Spain) on early psychosis (Vallina et al., 2002) using the criteria described by Yung et al. (2004). These inconsistencies may be attributable to differences in the age inclusion criteria, but another possible explanation for these differences might be that in the Cantabrian and other international studies, the group referrals came from the sanitary sector, whereas in our study this proportion accounted for slightly more than a third of the referrals. In this study, the inclusion of social services and educational professionals in the awareness strategy contributed to detect an additional two thirds of cases. Previous Investigation indicated that when awareness strategies extend to other sectors – such as education

services – there is a higher DUP reduction (Johannessen et al., 2001). In case of social services, is possible that are more likely than health or education services to reach individuals with severe mental illness and social risk of isolation, especially when the person is disconnected of the regular services that all citizens should be (Tizón et al., 2009).

Consistent with other studies which showing that negative symptoms are dominant in the early stages of the prodromal phase (Cornblatt et al., 2003; Yung et al., 2004b), the symptoms more frequent at baseline in this research are negative symptoms and linked to social functioning impairment. These results combined with a relative youth age (mean 15 years) and dominance of attenuated positive symptoms might indicated that this strategy is detected ARMS further in time from FEP. In this way, would increase the potential for preventive interventions, but also the risk to treat ‘false ARMS positives’ (Corcoran et al., 2005).

The reliable identification of ARMS patients is the first step toward prevention. The next step is how to treat to those who are in risk and seeking for help. The beginning of indicated early intervention in the pre-psychotic state was accompanied by extensive ethical discussions concerning the potential benefits and risks (McGlashan, 2001). Generally, the prevention or delay of psychosis as well as the improvement of prodromal symptoms, as well as of the course and outcome of the full psychotic disorder, if it emerges, are considered potential benefits. These possible gains have to be weighed against potential risks of stigmatization and provocation of anxiety by confronting individuals with the threat of a psychotic disorder and of possible short- and long-term side-effects of the interventions (Correl et al., 2010). The general approach to minimize the risks is use a clinical staging model in the treatment of ARMS individuals that reserves higher-risk interventions for the later, more symptomatic disease stages

(McGorry et al., 2006). It has been proposed four treatment stages tailored to match the symptom presentation of ARMS patients (Haroun et al., 2006). The first three involved diagnostic, psychoeducation and psychosocial and therapy intervention. Only the last phase implies pharmacologic interventions. So, the first line of treatment is characterized by an intensive psychosocial treatment which needs the engagement and a reasonable working alliance (Lecomte et al., 2008), two aspects easier to develop in the prepsychotic phase (Bechdolf et al., 2006). Psychosocial and interpersonal factors have been implicated in the engagement process in psychosis samples (Tait et al., 2004) but, equally in the development and course of psychosis (Read et al., 2005). As mentioned before, different findings in emotional, cognitive and interpersonal process related with psychotic symptoms seem indicated that insecure attachment in adulthood, which is associated with negative beliefs about the self and others as well as with maladaptive methods for coping with stress, can increase the vulnerability to psychotic symptoms and have an adverse effect on the course of psychosis once symptoms are present (Berry et al., 2007).

The chapter 2 (part 2) and chapter 1 of the annex presented two investigations which aimed to explore the impact of attachment on symptoms and functioning evolution across two different periods of psychosocial treatment in ARMS patients. Both controlled for severity of baseline symptoms.

The principal finding of the investigations presented in chapter 2 revealed that attachment prototypes, particularly secure, preoccupied and dismissing attachment, predicted improvement in psychoticism beyond the effects of baseline symptom severity and premorbid social adjustment (PSA). These prototypes share the existence of at least one positive working model (either of the self or others), suggesting that in order to benefit from treatment, at least in a relatively early stage, it is necessary to have

some degree of a positive internal working model. Also, secure attachment was predictive of improvement in disorganization and functioning. However, none of the attachment prototypes predicted improvement in negative symptoms, probably due to stronger genetic and neurodevelopmental basis that negative symptoms might have compared with the stress-sensitivity and cognitive pathways leading to positive symptoms (Myin-Germeys and van Os, 2007).

The mechanism through which attachment impacts on clinical outcomes within a therapeutic setting might be related to the therapist becomes a healthy attachment figure (Adshead, 1998) and the therapy turns into a protective context and a significant emotional experience (Crowell and Treboux, 1995). In this way, protective therapeutic setting probably helps patients to strengthen the positive elements of the working models while decrease the negative ones. Consistently, a more negative model of the self (strongly related with self-esteem) has been linked to increases in hallucinatory behavior (Berry et al., 2008), paranoia (Smith et al., 2006), risk of psychosis (Krabbendam et al., 2002) and maintaining the symptomatology (Close and Garety, 1998). Consequently, feeling valued in psychotherapy can contribute to symptom reduction. The reinforcement of positive aspects of attachment could help to contain anxiety, facilitating more coherent and organized verbal and behavioural expression and recovering contact with others in daily activities.

This research also found a slight symptomatic change after 6 month of psychosocial intervention. These results might have been influenced by using a “prodromal” instrument (Olsen and Rosenbaum, 2006b) in combination with relevant risk factors for psychosis that the sample has like low socioeconomic status and high urbanization (Wicks et al., 2005; van Os et al., 2003). But, at clinical level these results

might indicate that a brief psychosocial treatment acts as a brake on the exacerbation of symptoms, thereby maintaining symptomatology at entry level.

The research presented in the chapter 1 of the annex extends the follow up from 6 months to one year. The results indicated that the sample as whole improvement in all clinical measures. Thus, symptom and functional improvement is greater at 12 month follow up than 6-month. The engagement in a psychosocial intervention for a year can be related with a positive therapeutic relationships and higher adherence to treatment than those who not complete the follow up, impacting in a positive way on clinical outcome. Both results might indicate that a psychosocial treatment contributes to a better course of early phases of psychosis even in socially vulnerable samples.

With respect to the main objectives of this study, the results indicated that patients with better attachment at the beginning of treatment presented a better clinical outcome after 12 months of psychosocial treatment. Specifically, participants with lower levels of avoidant attachment (fearful and dismissing attachment) at the start of treatment showed greater improvement in positive, negative and total scores of the PANSS across one year of treatment than did participants with poorer attachment. Regarding secure attachment, results revealed that ARMS patients with higher baseline secure attachment experienced greater improvement in functioning, but not in symptoms, over 12 months of psychosocial treatment than did patients lower in secure attachment. These findings refer to a dimensional approach of the attachment organization in which an individual can favor avoidant modes of defense in a more secure or organized way, or in a more insecure or disorganized way. Therefore, clinical outcomes can vary in patients with insecure-avoidant attachment depending of the level of rigidity and self-defeating of their defensive strategies and flexibility and vulnerability of their organizational capacities (Slade, 2008).

A difference with the chapter 2, in which found that secure attachment predicted improvement in psychoticism and disorganization, in this study those associations have not emerged, only for functioning, at the one year follow-up. One possible explanation, based on the social cognitive model of attachment (Baldwin et al., 1996), involve the idea that different attachment models can be activated in a person by specific circumstances (Davila et al., 1999). Psychosocial interventions could elicit secure schemas of attachment and have an impact on daily activities, with a more behavioral criteria that functioning implies, in a long term. But at symptom level which has cognitive and emotional components, the activation of secure models only lasts for short-time periods and finally the predominant insecure attachments have an influence on symptoms at a long-term. In fact, the majority of the sample changes from an insecure prototype to another insecure organization, like in others studies (Diamond et al., 1999; Travis et al., 2001).

The research presented in chapter 1 of the annex addressed the objective of to explore the relation between change in attachment and change in symptoms. Specifically it was proposed that improvement in secure attachment and decrease in insecure attachment across the 12 months of treatment will be related with better outcome. The results partially confirm the hypothesis. A decrease in preoccupied attachment was related to improvement in positive symptoms, negative symptoms, general psychopathology and total PANSS. Several studies indicate a relationship between preoccupied attachment and differences in clinical outcome in psychotherapy context (Berry et al., 2008; Fonagy et al., 1996; McBride et al., 2006), including the results of chapter 2 which indicated that preoccupied attachment, or anxious attachment according to others measures, predicted improvement in positive symptoms, specifically in psychoticism.

One unexpected finding was that change in secure attachment was not related with change in symptoms. The secure attachment was the less frequent in this sample. So, it is likely that the principal traits of the predominant fearful attachment style (no secure attachment), which has negative workings models, more related to psychotic symptomatology, have to change so that there is an impact on the course of symptoms. Negative models of the self, as mentioned before, are linked to psychotic symptoms, and also negative models of others are related with these type of symptoms, especially with paranoia in clinical (Berry et al., 2008) and non-clinical samples (Pickering et al., 2008). Therefore, in order to improve the symptoms, the negative workings models have to diminish, turning to a softer insecure attachment.

Summary and research findings

The three studies presented here refer to different phases of one process: the early intervention in psychosis. The first study described the detection strategy of ARMS patients including selection criteria and recruitment practices of an Early Care Team. Following international proposals both entry criteria and recruitment detected a higher incidence than other studies, probably due to the consideration of educational and social services in the network of referrals. The predominant symptoms of these patients are negative and related with social deterioration; both are unspecific to other mental disorders. So, it seems appropriated implementing a two-stage detection strategy, with one stage using broader criteria (identified through a screening instrument) in a community setting, and a second stage using more specific criteria (ARMS) in a specialized context.

The second and third study described some clinical outcome after 6 and 12 months of an intense psychosocial intervention of ARMS patients in the Early Team

Care. The principal aim of both studies was to explore the impact of attachment in symptoms and functioning over and above of symptoms/functioning severity. At 6 month-follow up all attachment prototypes which shared some positive working model, i.e. secure, preoccupied and dismissing, predict improvement in psychoticism. Likewise secure attachment also predicted improvement in disorganization and functioning. Probably, experienced the therapeutic setting as a secure attachment base helped ARMS patients to disconfirm negative models and/or reinforce positive ones.

At 12 month-follow up the results indicated that patients with lower avoidant attachment at the beginning of psychosocial treatment presented a better clinical outcome after 12 months of psychosocial treatment, specifically improvement in positive, negative and total scores of the PANSS. ARMS patients with higher baseline secure attachment experienced greater improvement in functioning, but not in symptoms across the follow up. Regarding the relation between change in attachment and change in symptoms, a decrease in preoccupied attachment was related to improvement on all symptom measures. These findings seem suggest that at one year of follow up the intensity and predominance of the insecure attachment plays a differential role in clinical outcome. The mechanism of symptom change a long term would be via softening of insecure attachment rather than a reinforcement of secure prototype, less intense and less predominant in these patients.

The two studies suggest that knowing the patient's attachment prototype can help in planning and tailoring therapeutic objectives and intervention strategies.

In both studies symptom improvement was slight, but was greater at 12 month follow up than at 6-month. However, these results might indicate that a psychosocial treatment contributes to a better course of early phases of psychosis even in socially vulnerable samples.

Directions for future research

The description of a detection strategy for ARMS patients in a public system reveals some pending issues for future research. Firstly, the use of a screening instrument such as ERIRAOS might contribute to a higher accuracy of the referral process, so it would be convenient to have its standardized Spanish version. Secondly, in order to test the effectiveness of this strategy, it is necessary to compare the relative performance of different detection strategies using a proper control group to further expand the results presented here.

Regarding the studies of attachment as an outcome predictor in ARMS patients under psychosocial treatment, different research aims arise from these investigations. The therapist assessed the attachment prototypes of the patients as a way to avoid a potential bias in patients' self-report due to the current clinical state. Future studies should investigate the convenience of using patients' self-report or a combined approach, as well as taking into account the attachment prototypes of the intervening professionals, because these affect the relationship with patients with psychosis (Tyrrel et al., 1999; Berry et al., 2008b).

In order to control possible confounders in the relation between attachment change and symptom change, it is necessary to consider factors that can contribute to change in attachment, like meaningful life events or losses (Davila and Sargent, 2003).

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PART 4

Annex

CHAPTER 1: Impact of attachment style on change in symptoms across 12 months in persons with an at risk mental state for psychosis³

Abstract

Attachment theory provides key elements for the understanding of the psychosocial vulnerability for and response to psychosis emergence. This study examined 1) whether pre-treatment attachment styles are differentially associated with clinical and functional outcome in at risk mental state (ARMS) for psychosis patients across one year of psychosocial treatment, and 2) whether clinical change is associated with change in attachment ratings beyond the effect of baseline symptom severity. Thirty-eight ARMS patients (mean age= 16.7, SD=5.9) implicated in a psychosocial needs-adapted treatment were evaluated with the Positive and Negative Symptoms Scale, the Global Assessment of Functioning and the Relationships Questionnaire. Lower levels of insecure-avoidant attachment predicted better clinical outcomes. A decrease in preoccupied-anxious attachment was associated with symptom amelioration, whereas higher levels of secure attachment predicted improvement in functioning. The intensity of insecure attachment plays a significant role in the clinical outcome of ARMS patients involved in psychosocial treatment. Softening insecure attachment in the therapeutic setting probably favors a better course in the early phases of psychosis. In this sense, negative schemas of the self and others were related with symptom outcome, which is consistent with current psychosocial models of psychosis.

³ Quijada, Y., Kwapil, T., Tizón, J. L. and Barrantes-Vidal, N. Impact of Attachment Style on Change in Symptoms across 12 months in Persons with an At Risk Mental State for Psychosis (*Submitted for publication*)

Key words: Early psychosis, prodromal symptoms, attachment styles, change

1. Introduction

Attachment theory has provided to research and theoretical models key elements for understanding several difficulties in relation with the self and others across the life span. The human attachment system organizes early personal experiences within internal working models which filter and channel new experiences; therefore, an individual tends to follow the same trajectory throughout life (Bowlby, 1980). Following these postulates, Bartholomew and colleagues (Bartholomew and Horowitz, 1991) proposed a model of adult attachment that distinguishes the working models of the self (related with anxiety and dependency in close relationships) and the others (associated with the tendency to avoid closeness in relationships), which intersect in a two-dimensional space to yield four attachment prototypes: *Fearful-avoidant*, characterized by negative views of self and other; *Dismissing-avoidant*, typified by a positive view of self and negative view of other; *Preoccupied*, typified by a negative view of self and positive view of others; *Secure*, characterized by positive views of self and other.

Despite the essential stability and continuity of the attachment system, internal working models can be modified as a result of an adaptation to new or interpersonally relevant life circumstances that are ongoing and emotionally significant (Bowlby, 1969). In this sense, therapy can represent a significant emotional experience capable of changing problematic working models (Crowell and Treboux, 1995). Bowlby indeed suggested that the therapist's role is to provide a secure base for the client while disconfirming the client's problematic working models of relationships.

Investigations on the stability of attachment prototypes have found significant

stability over periods ranging from one week to two years, but the estimates have been usually around .5 – .7 (Zhang and Labouvie-Vief, 2004). In general, attachment prototypes are only moderately stable in non clinical (Davila and Cobb, 2003), clinical (Crowell and Hauser, 2008) and chronic schizophrenia samples (Berry et al., 2008). However, there is an increasing recognition in the attachment literature that people are changing for psychologically important reasons rather than due to unreliable measurement (Baldwin and Fehr, 1995; Davila and Cobb, 2003).

Current models of psychosis suggest that adverse environmental factors, especially interpersonal ones, have an impact on emotional and cognitive styles which, in turn, play an important role in the development and course of psychosis (e.g., Bentall and Fernyhough, 2008; Myin-Germeys and van Os, 2007; Read et al., 2005). It has been postulated that negative beliefs about the self and one's social environment play a fundamental role in the vulnerability for and maintenance of psychotic symptoms (Garety et al., 2001; Penn et al., 2004), particularly paranoia (Freeman et al., 2002). Likewise, avoidant strategies have been linked to both poor recovery following the onset of psychotic symptoms (Thompson et al., 2003) and to insecure attachment and negative self-evaluation in patients with psychosis (Tait et al., 2004). Other environmental factors, like the interpersonal context and interpersonal functioning, have been associated with relapse and recovery after the onset of symptoms (Gumley, 2011).

The findings referred to above can be related with recent applications of attachment theory to psychosis, which underscore that attachment embeds key elements playing a critical role in the vulnerability for and response to psychosis emergence, such as affective dysregulation, social cognition, and interpersonal behaviour (Berry et al., 2007). Insecure or disorganized attachment patterns are activated during periods of stress or threat perception, yielding the activation of nonadaptive affective, attentional

and behavioural modes linked to negative internal working models. These patterns could mediate the use of dysfunctional cognitive mechanisms and affective dysregulation which, probably in interaction, might lead to reality distortion (Read et al., 2009).

Studies on attachment and psychosis have reported that the majority of patients with schizophrenia are classified as having either dismissing or fearful attachment prototypes (Dozier et al., 1991; Dozier and Lee, 1995). Likewise, in a large sample of patients with schizophrenia, Mickelson and colleagues (1997) found a high proportion of patients having avoidant attachment. Insecure attachment has also been linked to the onset of schizophrenia at an earlier age (Ponizovsky et al., 2007). A greater prevalence of the ambivalent prototype of peer attachment has been found in First-Episode Psychosis samples (Couture et al., 2007). At symptom level, the avoidant attachment dimension has been associated with positive and negative symptoms (Ponizovsky et al., 2007), as well as paranoia, in persons with schizophrenia (Berry et al., 2008).

However, the role of attachment in the initial stages of psychosis is not yet well understood. The early detection and treatment of prodromal or “at-risk mental states” (ARMS) patients for psychosis has been considered essential for the improvement of the disorder (Yung et al., 2004), since delay in treatment correlates with unfavorable outcome (Norman and Malla, 2001). In this stage, psychosocial interventions appear as the first-line treatment strategy, as assumed by different early intervention programs (Killackey and Yung, 2007). The continuity and development of this type of intervention needs the engagement of patients and a reasonably good working alliance (Lecomte et al., 2008), two aspects easier to develop in the pre-psychotic phase (Bechdolf et al., 2006), and both related with attachment style (Dozier et al., 2001; Tait et al., 2004). Therefore, it is essential to understand the role of patient's attachment style

at this early stage and its impact on treatment outcomes.

Attachment theory postulated that any changes in attachment representations will result in fundamental changes in relationship schemas and self-concept (Bowlby, 1988), and that these changes will be directly related to treatment outcomes (Tasca et al., 2007). Surprisingly, studies investigating changes of attachment styles during psychotherapy are very rare (Strauss et al., 2011). These studies have reported associations between improvement in attachment security (Muller and Rosenkranz, 2009; Travis et al., 2001), change from insecure to secure attachment (Kilmann et al., 1999; Lawson et al., 2006; Levy et al., 2006; Travis et al., 2001), decreasing levels of attachment insecurity (McBride et al., 2006; Muller and Rosenkranz, 2009; Tasca et al., 2007) and better outcome. However, other investigations have failed to replicate some of these findings (Strauss et al., 2011). In psychosis samples only one study has explored change in attachment dimensions and change in symptoms, finding a significant association between increases in attachment anxiety and changes in the PANSS total score and in hallucinations item after six months follow-up (Berry et al., 2008).

In a prior study (Quijada et al., 2012) with ARMS patients for psychosis we found that attachment predicted symptom improvement after six months of psychosocial treatment. Specifically, a high level of secure attachment predicted improvement in psychoticism, disorganization and functioning, and higher levels of preoccupied and dismissing styles also predicted improvement in psychoticism. Both the preoccupied and dismissing styles share a positive view of others, so it was hypothesised that the psychosocial intervention may have had an impact on internal working models via strengthening the positive working models and disconfirming the negative ones. However, this proposal could not be tested in that study as attachment re-

test was not available at six months. In the present study we examined 1) whether pre-treatment attachment is differentially associated with change in symptoms and functioning of ARMS patients across one year of psychosocial treatment, and 2) whether clinical change is associated with change in attachment ratings beyond the effect of baseline symptom severity. Taking into account the scarcity of studies in this area, highly specific hypotheses were not offered. However, it is expected that patients with better attachment at the start of treatment will show greater decrease in symptoms and better improvement in functioning across the 12 months of treatment (over-and-above the baseline level of symptoms and impairment). Furthermore, it is expected that improvement in secure attachment and decrease in insecure attachment across the 12 months of treatment will be related with better outcome over-and-above the effect of baseline symptom/functioning severity.

2. Method

2.1 Subjects

Participants were recruited from a public service from Barcelona (Spain) specialised in the early detection and treatment of psychosis, the EAPPP team (Quijada et al., 2010; Tizón, 2009). Criteria for the ARMS groups were derived from Yung et al.(1998) and Miller et al.(2002): age range between 12 to 45 years, presence of Attenuated Positive Symptoms (APS), Brief Limited Intermittent Psychotic Symptoms (BLIPS), or familial vulnerability plus reduced functioning. The operationalization of these conditions follows the European Prediction of Psychosis Study proposal (see Quijada et al., 2010, 2012). Exclusion criteria were: (a) diagnosis of a previous psychotic episode for more than one week; (b) psychotic symptoms due to substance abuse or to organic mental disorder; (c) mental retardation.

Sixty -eight patients met the ARMS criteria during the 41 months recruitment period. Four refused to participate and twenty six did not complete the follow-up due to treatment abandonment or relocation. No differences were found for symptoms and functioning at baseline between those who completed the study and those who did not. The final sample was composed of 38 patients with a mean age of 16.7 (SD = 5.9) years (range 12-38.6). Participants were all single, 76.3 % were men, and 81.6% were in secondary school. Socioeconomic level ranged from very-low (15.8%), low (44.7%), middle-low (24.9%) to middle-middle (10.5%) level. 28 of these patients participated in a previous study (Quijada et al., 2012).

2.2 Measures

Symptoms were assessed with the Positive and Negative Symptoms Scale (PANSS, Kay et al., 1987; Peralta and Cuesta, 1994). The PANSS is a clinician-administered, 30-item semistructured interview consisting of 7 items assessing positive symptoms of psychosis , 7 items assessing negative symptoms and 16 items assessing global psychopathology. All items are scored between 1 (not present) and 7 (severe). Its reliability and validity have been demonstrated in several studies (Kay et al., 1988) and has been used as an outcome measure in psychotherapy treatment with ARMS patients for psychosis (Morrison et al., 2007). General functioning was evaluated with the Global Assessment of Functioning (GAF, APA, 1994), a 100-point measure of psychological, social and occupational ability.

Attachment was assessed with the Relationships Questionnaire (RQ; Bartholomew and Horowitz, 1991; Schmitt et al., 2004). The RQ is a single item measure made up of four short paragraphs, each describing a prototypical attachment pattern: Secure, Fearful, Preoccupied and Dismissing. It has been widely used in adult

attachment research including clinical samples of adolescents, and established to have good reliability and validity (Ravitz, 2010; Scharfe, 2002). Its stability is moderate, but better when the scale is completed by an observer than a self report and when using continuous rather than categorical ratings (Scharfe and Bartholomew, 1994), which is the case of this study. The primary clinician rated each participant on degree of correspondence to each prototype on a 7-point scale and chose which prototype best characterised participants.

2.3 Procedure

The procedure was approved by the Jordi Gol Ethics Committee, an organism that supports research in primary health care in Catalonia. Informed consent was signed by the participants and/or their parents. Participants also completed comprehensive medical and neurological evaluations (including computed tomography and electroencephalogram) to rule out organicity, and a toxicological screening.

All patients who fulfilled ARMS criteria received a needs-based treatment during at least the 12-month-follow-up with an individualised design of the therapeutic plan, in line with the guidelines of Alanen (Alanen, 2003; Tizón, 2004).

Clinicians completed the clinical measures at baseline, 6 months and 12-month follow-up. Likewise, completed the attachment questionnaire at baseline and at 12 months. Raters of all measures were unaware of the aim of the research.

2.4. Data Analysis

Data were analyzed using IBM Statistical Package for the Social Sciences version 19.0. A comparison was conducted between baseline and 12-month follow-up scores on attachment, clinical and functioning measures by means of t-tests. Multilevel

regression analyses were performed to analyze whether baseline attachment predicted change across the baseline, 6 and 12 months assessments. All the multilevel regression analyses included as a first step the baseline score on the measure of interest (PANSS scales and GAF baseline scores). This was done to make a more conservative test of whether variance in the attachment measures were predictive of the change in symptoms and functioning over and above the possible baseline association between attachment and symptoms, i.e., that the predictive effect of attachment on outcome was not solely due to baseline associations of attachment and symptoms.

In order to test whether the change slope in attachment and clinical and functional measures were associated, change scores between baseline and 12 months were computed and these were correlated. Change scores for all measure were calculated by subtracting baseline score from 12 month score. Therefore positive scores in secure attachment and GAF reflect improvement on its status and, on the contrary, indicate worse symptoms and poorer insecure attachments.

Effect sizes were calculated using Cohen's *d*, representing the difference between two means expressed in standard deviations (mean of the pooled standard deviations in the two times). Level of significance was set at $P=0.05$ or $P=0.01$, two-tailed.

3. Results

At baseline most patients had a predominant fearful attachment prototype (60.5%), followed by preoccupied (21.1%), dismissing (10.5 %) and secure (7.9%). At the end of the follow up, 39.5% of patients changed their predominant attachment prototype. Of those who changed, 3 patients (7.9%) did so from an insecure to a secure attachment, and the rest (31.6%) changed from an insecure attachment prototype to

another insecure prototype. Finally, fearful and preoccupied attachment were the most frequent predominant prototypes (both 15%), followed by secure (13.2 %) and dismissing (7.9 %). Regarding the stability of the attachment prototypes, attachment scores at baseline were positively and significantly correlated with attachment scores at 12 months, with the exception of the fearful prototype (secure attachment: $r = 0.49$, $p = 0.002$; fearful attachment: $r = 0.22$, $p = 0.189$; preoccupied attachment: $r = 0.43$, $p = 0.006$; dismissing attachment: $r = 0.65$, $p = 0.000$).

Table 1 reports descriptive data for attachment, symptoms and functioning at baseline and 12-month assessments, as well as the results of t-test comparisons. As it can be seen, participants showed a pattern of overall improvement, reaching significant differences on secure attachment ratings, general psychopathology, total PANSS scores and functioning. Table 1 also shows the effect sizes of all comparisons. A small effect is denoted by a d around 0.2, medium at 0.5, and large at 0.8 (Cohen, 1988). The increase in functioning was almost large whereas the rest of differences were small.

Table 2 presents the results of the multilevel regression analyses performed to analyze the impact of baseline attachment on the slope of clinical and functional measures across the three assessments. As it can be seen, fearful and dismissing attachment scores significantly predicted change in positive, negative and total scores. Dismissing attachment scores also predicted change in general psychopathology. In every case, participants with better baseline attachment experienced greater improvement across the 12 months of treatment than did participants with poorer attachment, over-and-above the effects of baseline symptoms. This is illustrated in Figure 1, in which participants lower in dismissing attachment experienced greater decrease in positive symptoms of psychosis across 12 months than did participants higher in dismissing attachment. Finally, secure attachment significantly predicted

improvement in GAF scores across the 12-month treatment period over-and-above baseline GAF score. As seen in Figure 2, participants who were higher in baseline secure attachment experienced greater improvement in functioning over the 12 months of treatment than did participants lower in secure attachment.

Partial correlations were conducted between change in attachment prototypes and change in clinical measures controlling for the respective baseline scores (Table 3).. Only change in preoccupied attachment was associated with symptom change. In particular, a lower level of preoccupied attachment correlated with improvement in all PANSS scales: positive symptoms, negative symptoms, general psychopathology and total PANSS, but not with change in GAF. All of these results had a medium size effect.

4. Discussion

As expected patients with better attachment at the beginning of treatment presented a better clinical outcome after 12 months of psychosocial treatment beyond the effect of baseline symptom severity. Specifically, participants with lower levels of fearful and dismissing attachment (both considered avoidant attachment) at the start of treatment showed greater improvement in positive, negative and total scores of the PANSS across one year of treatment than did participants with poorer attachment. The same association occurred for dismissing and general psychopathology. Previous studies (McBride et al., 2006) indicated that dismissing patients are likely to do better in psychotherapy than other insecure attachment prototypes , even so than patients with secure attachment (Fonagy et al., 1996). Also, in a prior study with ARMS patients we found that dismissing attachment predicted improvement at 6 months follow up in positive symptoms (Quijada et al., 2012). This result indicated that the intensity of the insecure-avoidant attachment plays a differential role in clinical outcome. Consistent

with this, Slade (2008) identified crucial dimensions that are seen to underlie all adult and infant attachment classification systems. One of them is the organized versus disorganized dimension. Those who fall at the low end of the organization axis are likely to be more disturbed and lower-functioning. Implicit in this dimensional approach to attachment classification is the notion that an individual can favor avoidant modes of defense in a more secure or organized way, or in a more insecure or disorganized way. Therefore, clinical outcomes can vary in patients with insecure-avoidant attachment depending of the level of rigidity and self-defeating of their defensive strategies and flexibility and vulnerability of their organizational capacities.

Regarding secure attachment, results revealed that ARMS patients with higher baseline secure attachment experienced greater improvement in functioning over 12 months of psychosocial treatment than did patients lower in secure attachment. Several investigations have found that secure attachment predicted better functioning in different types of mental disorders (Strauss et al., 2006). Similarly, we previously found that secure attachment predicted amelioration in functioning after 6 months of treatment in ARMS patients (Quijada et al., 2012). However, in that study secure attachment also predicted improvement in psychoticism and disorganization, but those associations have not emerged at the one year follow-up. In both investigations the majority of patients had at baseline a fearful attachment as the predominate prototype. According to the social cognitive model of attachment (Baldwin et al., 1996), they also could have a number of different attachment models or relational schemas that can be activated by specific circumstances (Davila et al., 1999). Psychosocial interventions could elicit secure schemas of attachment and have an impact on daily activities in a long term, but at a symptom level, with more cognitive and emotional components, the activation of secure models only lasts for short-time periods and finally the predominant insecure

attachments might have an influence in symptoms at a long-term. In fact, only 3 patients changed at 12 month follow-up from insecure to secure, and the others did so from an insecure prototype to another insecure prototype. Studies have found that some patients had not become secure over the course of treatment, but rather had shifted to a different insecure attachment organization (Diamond et al., 1999; Travis et al., 2001).

It was proposed that amelioration in secure attachment and decrease in insecure attachment across the 12 months of treatment will be related with better outcome over-and-above the effect of baseline symptom severity. The results partially confirm our hypothesis. A decrease in preoccupied attachment was related to improvement in positive symptoms, negative symptoms, general psychopathology and total PANSS. Several studies indicate a relationship between preoccupied attachment and worse outcome in psychotherapy context. In a preceding investigation with ARMS patients, preoccupied attachment, or anxious attachment according to others measures, predicted improvement in positive symptoms, specifically in psychoticism (Quijada et al., 2012). Likewise, Berry and colleagues (2008) found a significant association between increases in attachment anxiety and changes in the PANSS total score and in hallucinations item after six months follow-up in persons with schizophrenia. Other studies with non psychosis samples have found that preoccupied/anxious patients are likely to do worse in psychotherapy than other insecure attachment organizations (Fonagy et al., 1996; McBride et al., 2006). Also, change in attachment anxiety was related with improvement in depression in a group psychodynamic-interpersonal psychotherapy (Tasca et al., 2007).

The positive impact of change in preoccupied attachment on all symptom scales in ARMS patients probably is related with its intrinsic characteristics: a negative model of the self and external evaluation as a source of self-confirmation. The protective

therapeutic setting probably helps patients to strengthen the capacity to perceive to others in a positive way, validating the therapeutic space as a source of personal confirmation. In this way, psychosocial treatment can help to diminish a negative model of the self and reinforce a better self-esteem. This change processes might explain symptom improvement given that a negative model of the self and a poor self-esteem are related to increases in hallucinatory behavior (Berry et al., 2008), paranoia (Smith et al., 2006), risk of psychosis (Krabberman et al., 2002) and symptom maintenance (Close and Garety, 1998).

It is surprising that change in secure attachment was not related with change in symptoms as expected. Fonagy and colleagues (1996) also found that insecure attachments were more related with symptom change than secure attachment, but not explanations were offered. It is likely that the principal traits of the predominant attachment style, more related to psychotic symptomatology, have to change so that there is an impact on the course of symptoms. That is, the predominant working models of the self and others of this sample were negative (the opposite to secure attachment) correspondent to fearful attachment, like in other psychotic samples (Mickelson et al., 1997). Negative models of the self, as mentioned before, are linked to psychotic symptoms, and also negative models of others are related with these type of symptoms, especially with paranoia in clinical (Berry et al., 2008) and non-clinical samples (Pickering et al., 2008). Therefore, in order to improve the symptoms, the negative workings models have to diminish, turning to a softer insecure attachment. Perhaps this mechanism is plausible for psychotic symptoms since several other studies have found associations between change in secure attachment and better outcomes, but none included psychotic disorders or psychotic symptoms (McBride et al., 2006; Meyer et al. 2001; ; Muller and Rosenkranz, 2009; Travis et al. 2001).

It is important to note that the sample as whole improvement in all clinical measures, reaching statistic significance in terms of functioning, general psychopathology and total PANSS scores. These results are specially relevant for prodromal samples of psychosis as between 35% and 54% of ARMS cases detected using criteria similar to this study make the transition to FEP in 1 year (Miller et al., 2002; Yung et al., 2004), even if these percentages have recently declined (e.g. Woods et al., 2009). Also, the clinical improvement becomes more important since the majority of ARMS patients in this sample came from low socioeconomic levels and lived in a densely urbanized sector, two factors associated with a higher presence of psychotic symptoms and a greater risk of psychosis in epidemiological studies and vulnerable samples to psychosis (Ellett et al., 2007; Krabbendam and van Os, 2005; Olfson et al., 2002; van Os et al., 2003;). Thus, symptom and functional improvement in this study might indicate that a psychosocial treatment contributes to a better course of early phases of psychosis even in socially vulnerable samples.

The results of this study must be interpreted considering some limitations. The RQ has been mainly applied in relation to specific others and less as a measure of general attachment (which was our approach), although it is one of the most extensively used measures with large validation studies. Also, in the evaluation of attachment prototypes the assessment of the therapist was considered. This was done to avoid a potential bias in patients' self-report due to the current clinical state. Future studies should investigate the convenience of using patients' self-report or a combined approach, as well as taking into account the attachment prototypes of the intervening professionals, because these affect the relationship with patients with psychosis (Berry et al. 2008b; Tyrrell et al. 1999). Furthermore, different factors can contribute to change on attachment like meaning of life events or losses (Davila and Sargent, 2003), which

were not controlled in this study, and adult attachment prototypes are particularly unstable in clinical populations (Waters et al., 2000). However schizophrenia samples a moderate stability in attachment measurements has been found (Berry et al., 2008) like in our study, except for fearful. Fearful attachment has been considered similar to disorganization attachment and attachment representations that are fragmented and not well consolidated are prone to change, Davila and Cob, 2004).

To conclude, this study continued to explore the potential role of attachment in psychotic symptomatology and psychosocial interventions in the early phases of psychosis. The results indicated that the intensity of insecure attachment plays a differential role in the clinical outcome of ARMS patients and offers a more comprehensive approach to psychotherapy than categorical conceptions of attachment. Lower levels of insecure-avoidant attachment predicted better clinical outcomes and a decrease in preoccupied-anxious attachment was associated with amelioration in symptoms, whereas higher levels of secure attachment predicted improvement in functioning. Our findings support previous evidence that psychosocial interventions can improve the course of psychotic symptoms in prodromal phases of psychotic disorders and enhance the importance to consider both the attachment prototype of ARMS patients and its intensity for the design of strategies of treatment.

Table 1. Descriptive Data for Attachment, Symptoms and Functioning and Mean Comparisons between Baseline and 12-Month Follow-Up.

	Baseline (<i>n</i> = 38)		12-Month (<i>n</i> = 38)		T-test	Effect sizes (Cohen's <i>d</i>)
	Mean (SD)	Range	Mean (SD)	Range		
Attachment Prototype						
Secure	2.61 (1.60)	1-6	3.18 (1.50)	1-6	2.27 (0.02)*	0.37
Fearful	4.84 (1.24)	2-6	4.61 (1.26)	2-7	-0.93 (0.35)	-0.18
Preoccupied	3.89 (1.46)	1-6	4.34 (1.71)	1-7	1.61 (0.11)	0.28
Dismissing	2.79 (1.40)	1-6	2.87 (1.41)	1-6	0.41 (0.68)	0.06
PANSS Scale						
Positive	16.05 (6.02)	8-32	14.86 (4.72)	8-27	-1.28 (0.21)	-0.22
Negative	18.58 (6.48)	7-30	17.10 (5.78)	7-26	-1.47 (0.08)	-0.24
Psychopathology	39.58 (11.9)	22-66	36.05 (12.18)	21-74	-3.52 (0.03)*	-0.29
Total	74.21 (22.14)	46-119	68.03 (20.21)	41-122	-6.18 (0.03)*	-0.29
GAF	49.58 (10.71)	25-70	56.87 (8.20)	40-70	3.65 (0.001)*	0.76

**p* < .05

Table 2. Multilevel Regression Analyses on the Association of Baseline Attachment with Change in PANSS Scales over 12 Months Partialling Out PANSS Baseline Scores.

PANSS Positive symptoms		
<i>Predictor</i>	Coefficient	Standard Error
Secure	-0.003	0.040
Fearful	0.067*	0.029
Preoccupied	-0.003	0.041
Dismissing	0.078*	0.038
PANSS Negative symptoms		
<i>Predictor</i>	Coefficient	Standard Error
Secure	0.032	0.037
Fearful	0.073*	0.028
Preoccupied	-0.042	0.038
Dismissing	0.100*	0.050
PANSS General Psychopathology		
<i>Predictor</i>	Coefficient	Standard Error
Secure	0.161*	0.076
Fearful	0.130	0.074
Preoccupied	0.057	0.091
Dismissing	0.184*	0.075
PANSS Total		
<i>Predictor</i>	Coefficient	Standard Error
Secure	0.165	0.135
Fearful	0.275*	0.118
Preoccupied	-0.000	0.143
Dismissing	0.348*	0.137
GAF		
<i>Predictor</i>	Coefficient	Standard Error
Secure	0.153**	0.045
Fearful	0.018	0.066
Preoccupied	0.054	0.069
Dismissing	-0.117	0.087

* $p < .05$, ** $p < .01$

Table 3. Correlations between Change Scores in Attachment and Clinical Measures after the 12-Month Treatment Controlling for the Respective Baseline Symptoms/functioning Scores.

	Change in			
	Secure	Fearful	Preoccupied	Dismissing
Change in				
PANSS Scale				
Positive	0.02	-0.09	0.38*	-0.11
Negative	-0.28	-0.23	0.41*	-0.18
Psychopathology	-0.01	-0.06	0.38*	-0.08
Total	-0.08	-0.13	0.44**	-0.15
GAF	-0.01	0.08	0.16	0.02

* $p < .05$, ** $p < .01$

Medium effect sizes indicated in **bold font**

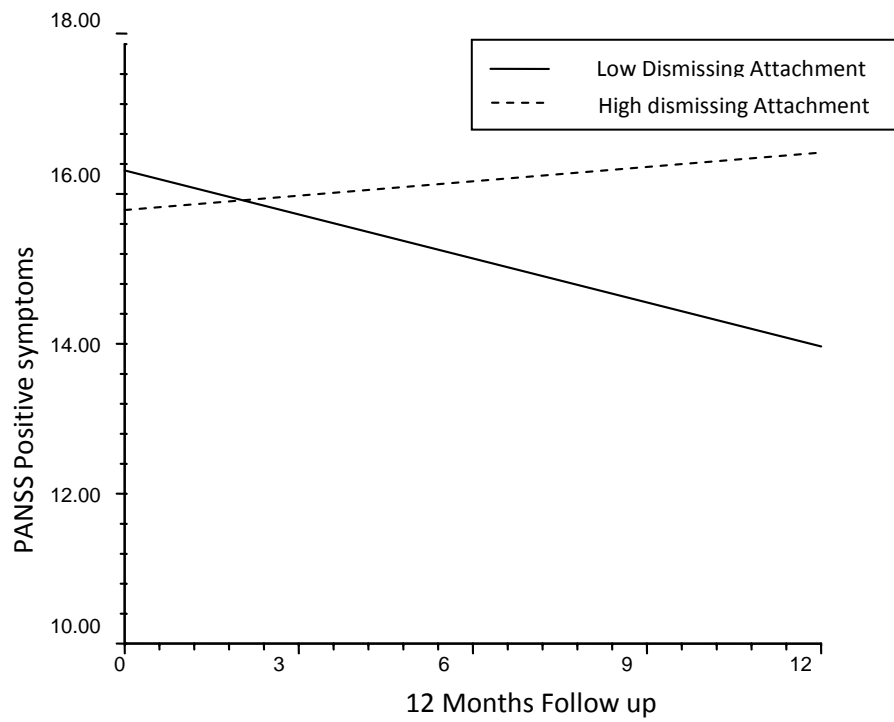


Figure 1. Relationship of the Course in PANSS Positive Symptoms with Dismissive Attachment across the 12 Months Assessments.

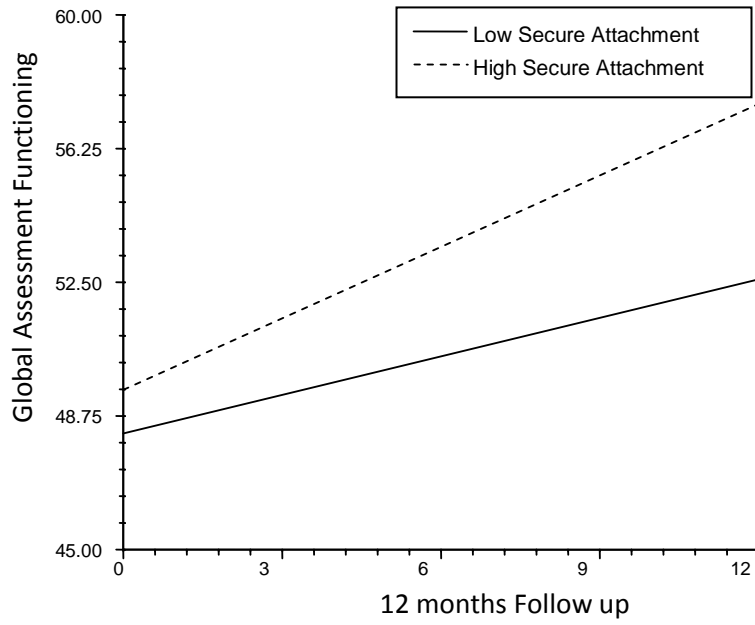


Figure 2. Relationship of the Course in GAF with Secure Attachment across the 12 Months Assessments.

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Cova, F., Díaz, R., Inostroza, C., Quijada, Y. (2004). Propiedades psicométricas de dos medidas de adversidad familiar: Eje V de la CIE-10 para Trastornos Mentales en Niños

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