

University of Southampton

“Just because you are paranoid, it doesn’t mean they are
not out to get you”

Paranoia in a normal population

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"Vem por aqui" --- dizem-me alguns com olhos doces,
Estendendo-me os braços, e seguros
De que seria bom se eu os ouvisse
Quando me dizem: "vem por aqui"!
Eu olho-os com olhos lassos,
(Há, nos meus olhos, ironias e cansaços)
E cruzo os braços, E nunca vou por ali...

A minha glória é esta: Criar desumanidade!
Não acompanhar ninguém.
--- Que eu vivo com o mesmo sem-vontade
Com que rasguei o ventre a minha mãe.

Não, não vou por aí!
Só vou por onde
Me levam meus próprios passos...

Se ao que busco saber nenhum de vós responde,
Por que me repetis: "vem por aqui"?
Prefiro escorregar nos becos lamacentos,
Redemoinhar aos ventos,
Como farrapos, arrastar os pés sangrentos,
A ir por aí...

Se vim ao mundo, foi
Só para desflorar florestas virgens,
E desenhar meus próprios pés na areia inexplorada!
O mais que faço não vale nada.

Como, pois, sereis vós
Que me dareis machados, ferramentas, e coragem
Para eu derrubar os meus obstáculos?...
Corre, nas vossas veias, sangue velho dos avós,
E vós amais o que é fácil!
Eu amo o Longe e a Miragem,
Amo os abismos, as torrentes, os desertos...

Ide! tendes estradas,
Tendes jardins, tendes canteiros,
Tendes pátrias, tendes tectos,
E tendes regras, e tratados, e filósofos, e sábios.

Eu tenho a minha Loucura!
Levanto-a, como um facho, a arder na noite escura,
E sinto espuma, e sangue, e cânticos nos lábios...

Deus e o Diabo é que me guiam, mais ninguém.
Todos tiveram pai, todos tiveram mãe;
Mas eu, que nunca principio nem acabo,
Nasci do amor que há entre Deus e o Diabo.

Ah, que ninguém me dê piedosas intenções!
Ninguém me peça definições!
Ninguém me diga: "vem por aqui"!
A minha vida é um vendaval que se soltou.
É uma onda que se alevantou.
É um átomo a mais que se animou...
Não sei por onde vou,
Não sei para onde vou,
--- Sei que não vou por aí.

Jose Regio

Glossary

Chapter 3

QPFINP (2000) – Questionnaire on Paranoid Feelings In the Normal Population

GPS (1992) – General Paranoia Scale (Fenigstein & Venable, 1992)

RSES (1965) – Rosenberg's Self- Esteem Scale (Rosenberg, 1965)

PG – Paranoia Group

NP – No Paranoia Group (control)

AG – Ambiguous Group

Chapter 4

STAI State – State Trait Anxiety Inventory: State version (Spielberger et al., 1983)

STAI Trait– State Trait Anxiety Inventory: Trait version (Spielberger et al., 1983)

FNE – Fear of Negative Evaluations Questionnaire (Watson & Friend, 1969)

PDI – Peters et al's Delusion Inventory (Peters et al., 1999)

Thesis abstract

This thesis provides a different perspective into the study of paranoia. Literature on this field has studied paranoia under the light of the medical model and has used clinical populations. In contrast to this, it is argued in this thesis that paranoia lies in a continuum with normal experiences at one end and abnormal cognitions at the other. Thus, this thesis “normalises” paranoia, which has always been considered to be a symptom of a psychiatric disorder.

In order to test the argument that says that paranoia is normal and is part of the natural responses to threat in the environment (Gilbert, 1998*a*), the research program starts with an exploratory study on the number of people from a sample in the normal population that report episodes of paranoia. This study not only for the first time measured the number of people in the normal population that reported paranoid experiences but it also provided in depth descriptions of those experiences.

Another study explored the attentional mechanisms for threat in people that report trait like paranoia in a normal population. In this case, the methodologies for attentional biases in anxiety were for the first time applied to the study of attentional biases in paranoia.

Both studies were part of fruitful research that proposes a new theoretical framework and research program to the study of paranoia. This thesis contributes to knowledge in the study of paranoia by providing a new theoretical framework that was based on two studies on paranoia in a normal population. The main achievement was evidence supporting the argument for paranoia as a normal process. Evidence was not clear in terms of the cognitive mechanisms present on paranoia in a normal population and more research is needed in this area.

All in all, this thesis managed to open new perspectives into the study of paranoia with interesting and ground breaking results.

Chapter 1

“ The growing consciousness is a Danger and a Disease.” (Nietzsche cited in Louis A. Sass, 1992 *Madness and modernism*, p.3)

Introduction

It is not rare to have feelings of being mistreated by others. Take for example the brilliant writer, winner of a Nobel Prize: Ernest Hemingway. In the last years of his life Hemingway accused the FBI of spying on his movements, persecuting him and mistreating his rights. Family and friends thought he was being paranoid, nobody was spying on him and in many instances Hemingway would publicly accuse and demonstrate anger towards individuals who he thought to be undercover agents. After his death and to many people's surprise Hemingway was right to feel persecuted. The FBI was spying on him and monitoring his life because of suspicions of liaisons with the communist party. Is it so abnormal then to feel paranoid in a society where one has always to watch his/her back against possible enemies? The feeling of paranoia is there, it seems to have a reason to be at some point. Humans have to compete for status and resources; they have to be aware of threat and deception caused by others. It is the law of survival in the social hierarchy. In society, it is easy to be abused by a powerful other, so one has to be aware that this may happen.

Usually, individuals that feel subservient to a powerful other, feel bitter and angry about their position in the hierarchy; tightly controlled by a higher status agent. Those low status individuals in order to avoid harm and gain praise and acceptance tend to display submissive behaviours such as smiling, praising the super-ordinate or even avoiding other people that would criticise them (see Gilbert & Allan, 1998). On the other hand, individuals high in the social hierarchy and successful in their status (as they possess the most important resources and are the dominant individuals) may also feel paranoid. Indeed, these individuals have to struggle to keep their status and to be aware of individuals that may deceive them or escape their “power” and control to compete with

them. Who has never thought, especially when they belong to a company, that their colleagues don't want them to be successful? It is part of the human nature to strive and to compete. The importance of having a stable position in the hierarchy is vital. Therefore, individuals have to be prepared and aware of deception. It is better "safe" therefore avoiding threatening agents than "sorry".

What does it mean being paranoid?

An attempt to define paranoia

For about 100 years, paranoia and delusional disorders have traditionally been considered as diagnostic symptoms indicating the presence of one of different psychotic disorders.

Description of this phenomenon can be traced back to Kraepelin (1919) who defined paranoia as a symptom of "dementia paranoides". At that time the key texts on Schizophrenia and delusional beliefs contained descriptions of persecutory beliefs that were observed by clinicians in practice rather than detailed definitions.

For example, in the beginning of the 20th century when psychiatry was advancing as a medical profession and the "ills" of the mind started to be acknowledged as diseases similar to the ones affecting the body, Jaspers (1913) provided a clinical account for persecutory delusions based on his observations in a clinical setting:

" the patient feels noticed, observed, put at disadvantage, despised, ridiculed, poisoned, bewitched. He is persecuted by authorities or by the public prosecutor for crimes of which he is falsely accused by gangs, Jesuits, Freemasons, etc."

With the rise of medicine and the development of psychiatry as a medical profession those clinical accounts were seen to be retrograde and not useful in clinical practice.

Thus, the lack of a proper definition of paranoid delusions led to the recent shift in theoretical and experimental research towards studying symptoms themselves rather than syndromes. This shift was accompanied by the development of standardised instruments

to assess the psychopathology and the behaviour that was associated with psychiatric illness. Diagnostic manuals with definitions of symptoms were written.

For example, the diagnostic tool such as the DSM - IV (Diagnostic Statistic Manual - 4th edition) describes paranoia as a symptom that can be present in several categories ranging from paranoid schizophrenia to delusional disorder and paranoid disorder. The operational account for paranoia is described as “ a delusion in which the central theme is that one is being attacked, harassed, cheated, persecuted, or conspired against”.

However, although discriminating six types of paranoid delusions, the DSM-IV not only does not provide a clear definition for each one’s characteristics but also uses the term paranoia in all types of delusions (e.g. grandiose paranoid delusion, paranoid delusion of reference, persecutory paranoid delusion and so on) making them all look the same and showing the same symptoms while they are different. This being the case, it can be argued that the concept of paranoia present in diagnostic manuals is murky and pervasive.

This is also the case when such a wide-ranging conception of persecutory delusions has included criteria such as ideas of reference that do not per se determine the presence of persecutory paranoia. See as an example the description provided by the textbook of Psychiatry: “Delusions of persecution, loosely known as paranoid delusions, include delusions of *self-reference (ideas of reference)* in which people take undue notice of or talk about the patient” (Leon, Bowden & Faber, 1989, p.458 Italics added). It is likely therefore, that the existing definitions for persecutory delusions have led to a number of research studies including individuals who believed that they were watched but who did not believe that they were to be harmed (Freeman & Garety, 2000). This means that individuals without directly showing persecutory symptoms may have been included in the studies jeopardising the conclusions that may be derived from them.

The literature in paranoia describes several studies that have followed the definitions provided by the diagnostic manuals to define their persecutory deluded group.

One line of thought explored the possibility of a *jumping-to-conclusions* bias in people that suffer from paranoia (Garety and Hemsley, 1994). In contrast, others have focused on the hypothesis that individuals who suffer from paranoia yielded a self-serving bias when compared to “normal” controls and other individuals that suffer from a different mental illness. This self-serving bias can be detected through the observation of another supposed bias that people with paranoia also demonstrate when attributing causes for negative events (i.e. *Personalisation*, the cognitive bias that persecutory deluded people have when they attribute the causes of negative events to other people rather than to themselves or to situational circumstances - Bentall and Kinderman, 1998). Moreover, it is assumed that individuals that suffer from paranoia tend to have *low self-esteem* (Zigler and Glick, 1987) and this is the product of a presumed discrepancy between their actual self and their ideal self (Bentall and Kinderman, 1998). Thus, one can hypothesise that because paranoid individuals have low self-esteem they are believed to preserve their ego by attributing negative events to other people and not to themselves. The last prominent line of thought includes the *theory of mind deficit* in paranoia. Indeed, Frith (1992) has argued that paranoia is due to an inability to understand the intentions, feelings and motivations of others. Such a disorder of misinterpreted social understanding could evolve from deficits stemming from the cognitive processes that are involved in the analysis of the meaning of social interactions.

After evaluating the summary of studies in paranoia that have been done until this present moment it can be argued that paranoia has had multiple meanings and that it has been described in so many ways making it unclear to the reader to what paranoia really means (e.g. paranoia is seen as a delusion that may be maintained by certain types of biases in reasoning, or it can be some kind of ideation about persecution that has the role of preventing the subjective awareness of internal low-self-esteem by attributing the blame to others when negative events happen).

As a result, it is important to provide a nosological concept for paranoia, however, until now research has not been fruitful in terms of establishing defining characteristics of

psychosis. As a matter of fact it can be argued that it cannot be found any reliable and valid definition in any manual for paranoia (Freeman & Garety, 2000). Those manuals do not tackle the psychological aspects of paranoia and provide an ill-defined definition that lead to methodological and conceptual flaws in research. The status of paranoia and delusions as diagnostic entities blurs research and theory in this area.

Since literature on paranoia that adopted the symptom approach to study this phenomenon has failed to adequately deconstruct paranoia and delusions or the relationship between them, this chapter will provide an attempt to “deconstruct” paranoia and delusions by providing a clear and useful definition for those.

1. The deconstruction process of the word “paranoia”

On one hand, as the concept of paranoia is a very important nosological concept for psychiatry and diagnostic procedures it can be hypothesised that its meaning should be used and defined by the day to day appraisal of one’s experience. Paranoia should be deconstructed to allow a profound study of its aetiology and to do this one has to examine language and to use exploratory studies of paranoia.

Philosophers such as Michel Foucault (1972) have claimed that words represent reality and they are “invented” because they have a specific function to serve in the world. Take for example Wittgenstein’s arguments about language games “ Say what you like as long as it does not stop you from seeing how things are Section 79 (1953)”. Wittgenstein (1953) clearly pointed out that words are used as tools and they exist in order to explain our experiences and transmit them to others. Words are the “*raison d’être*” in a social and linguistic community. They mirror the knowledge of social communities and they provide an explanation for their existing perceptions. Thus, the word *paranoia* represents a defined set of conceptual qualities and attributes that are connected to the experience one has in the social world. Indeed, it can be argued that paranoia is used in everyday vocabulary to represent confused feelings, despair and thoughts about potential threatening agents.

1.1. Dictionary definitions

A specialist dictionary definition (Reber, 1985) of paranoia lists several specific emotions that are taken to be strong and pervasive, e.g. jealousy or grandeur. What is useful in this definition is the idea that paranoid delusions “develop insidiously and knit together into a *rational* and *coherent* set of beliefs that is *internally consistent* and, once the initial set of assumptions is accepted, compelling and *vigorously defensible*” (p. 515, italics added).

There are three ideas presented here that are particularly useful to this work. Firstly, those paranoid ideas are rational and coherent to the person suffering them. This appeals to a constructivist approach (e.g. Maher, 1988). Secondly, the ideas are internally consistent, implying that an individual forms hypotheses to explain environmental and intrapersonal stimuli that form a consistent “story”. Thirdly, that the ideas are vigorously defensible appeals to schematic thinking, in that evidence to support the ideas is carefully selected in order to maintain them (as in schema maintenance, Tversky & Khaneman, 1974). All of these themes will be revisited in this chapter.

Perhaps the most useful phrase is that of “paranoid ideation”, defined as a *pattern of thinking* found in those suffering paranoid disorders. Despite the unhelpful circularity of this definition, the idea that paranoia can be defined as a pattern of thinking, or cognitive process is important. It can be seen as a process because it develops over time, but we can most usefully consider it to be the *process that may result in thinking being delusional*.

2. Three meanings of ‘paranoia’

As argued before, definitions of paranoia are often ambiguous. I find it helpful and necessary for all the reasons described above to separate three uses of the term - those are, to describe a cognitive process, a cognitive product, or in diagnosis to describe a symptom or syndrome. Paranoia appears as an explicitly defined symptom in three

diagnostic categories in DSM-IV: paranoid schizophrenia; delusional disorder and paranoid personality disorder. DSM-IV further discriminates six “types” of paranoid delusion: erotomanic; grandiose; jealous; persecutory; somatic; mixed; and unspecified. These are all examples of products - that is, formed beliefs. The final use is paranoia as a cognitive process involved in the appraisal of threat. This is where in a situation, an individual interprets a situation in a paranoid way. As Kramer (1998) clearly argued:

“... Paranoid social cognitions can be viewed as by-products of an interaction between the social information processing strategies paranoid perceivers utilise and the social contexts in which they seem sensible... they constitute, in short, attempts by social perceivers to make sense of and cope with threatening and disturbing social information.”
(Pg. 254)

With products and processes, the person would experience associated affect, behaviour and bodily sensation.

2.1. The focus of the present chapter

In this chapter paranoia is described as a process. The focus is on the cognitive processes involved in information processing and on the primitive system that evolved to do this. Also, this chapter only focuses on the perceptions of threat and intentions to harm from others - that is, it focuses on persecutory thinking, and not on grandiosity, jealousy, etc.

Indeed, it is argued that one and the most important defining characteristic of paranoia is the *malevolence* (Freeman & Garety, 2000). Paranoia reflects a belief that someone *intends* to harm you. This belief goes beyond a belief that is usually present in socially anxious people that reflects the idea that other people do not like you but they will not intend to do you harm (see DSM-IV, 1994 criteria). The paranoid person feels that he or she is a target of harm from a group of individuals or by a specific individual, usually with some kind of authority over the person. Also, the kind of threat that is involved in paranoia is not only physical (e.g. someone wants to hit you) but also psychological (e.g. someone is using emotional blackmail) and sociological (e.g. your boss firing you).

While taking into account those features of paranoia that were observed in both clinical (Freeman & Garety, 2000) and normal populations (Fenigstein & Venable, 1992) the main argument states *that paranoia, as defined, is a normal and probably an evolved process that can be explained by reference to inter-personal aspects of social situations such as praise, criticism and basic evaluation of one's talents and position in the social hierarchy and to the cognitive aspects of information processing of social threat.*

In terms of a cognitive model positing the cognitive mechanisms present in paranoia, it is argued (by drawing on a well-established distinction between two brain systems e.g. Gilbert, 1998a) that paranoia (process) occurs within the primitive system that appraises threatening information. This system is extremely fast when processing information, and interpretations are 'hot' (i.e. impregnated with affect). On the other hand, the higher-order cognitive system is in charge of mental logic and deductive-inductive reasoning. It is a system that elaborates "rational" explanations for the world by using hypothesis testing and integration of memories, inducing cohesive reasoning. This system is responsible for products, such as delusional beliefs, which develop over time, and whose origin, in part, is likely to reflect episodes of paranoia.

2.2. A cognitive model

A cognitive model of paranoia can be more easily constructed if the cognitive processes of paranoia are discriminated from the resultant delusional beliefs. It is useful to begin with the patient's experience in terms of the cognitive, affective, behavioural and environmental phenomena associated with paranoia. The clinical presentation of paranoid patients has several distinct features. It is characterised by (a) firmly held paranoid beliefs about the individual's relationship with the world (i.e. being punished, persecuted or otherwise threatened in some way in terms of physical or ego threat, or having a special relationship with the world, i.e. grandiosity); (b) associated constructions of the self that

both influence and are influenced by those beliefs; (c) a cognitive style that ensures that these beliefs are perpetuated; (d) associated affect (such as anxiety or depression).

3. Paranoia in a normal population

One line of research that is consistent with the main argument stating that paranoia can be best described as an evolved and normal cognitive process, is a growing literature, led by Fenigstein and Venable (1992), showing paranoia in a normal population.

Fenigstein (1997) and Fenigstein & Venable (1992) take an interesting line emphasising social and cognitive aspects of paranoia. This research programme emphasises the social nature of paranoia, in that its aetiology requires perceptions about the relationship to others. Fenigstein & Venable (1992) found that paranoia involves similar cognitive processes to those that occur in the very normal experience of self-consciousness. Particularly interesting is their assertion that “as a result of directing attention toward the self and increasing its accessibility, the self is more likely to be seen both as a causal agent and as a target of other’s behaviour” (p. 130).

Fenigstein and Venable (1992) thus examined the relationship between dispositional self-consciousness and a measure of paranoia developed for a normal college student population. They did this by asking participants to fill in a battery of questionnaires. These were the Self - consciousness Scale (Fenigstein, Scheier & Buss, 1975) that measures self-attentional dispositions belonging to two stable dimensions of self-consciousness: *Private* (awareness of personal aspects of self) and *Public* (awareness of self as social object) and the new measure for paranoia which drew mainly on the Minnesota Multiphasic Personality Inventory (MMPI) based paranoia scale and on other measures for paranoia and suspiciousness. As the MMPI is a measure of paranoia in a clinical population Fenigstein and Venable (1992) adjusted this measure to make it more suitable to be employed in a normal population. Fenigstein & Venable (1992) chose the

items carefully and made sure that they included the beliefs that people are trying to influence one's behaviour and are against one in various ways, making the individual into a subject of perceived scrutiny from others, feeling resented and embittered. The items that contained psychotic ideation were taken out of the questionnaire. Fenigstein & Venable tested this scale on 4 different samples over a time scale (1981-1995). Their samples were of a considerable size: from 119 to 180 people. Moreover, their coefficient alphas for internal consistency and reliability were high (ranging from .78 to .89), allowing this measure to be considered as a highly appropriate one to be used in a normal population.

Concerning results, Fenigstein & Venable (1992) found that "combining across samples, 62% of subjects, on average, endorsed a paranoid scale item as being slightly applicable to the self, and 33% endorsed the item as at least somewhat applicable." (Page 132). This finding is thus consistent with the assertion that paranoia is a normal process because it can be found in its milder forms in a normal population.

Furthermore, to further explore the relationship between dispositional self-consciousness and paranoid thought Fenigstein & Venable replaced a questionnaire measure of paranoia for a behavioural one. Thus researchers asked 40 participants who had completed the measures mentioned above some weeks before the experiment to go to an empty room or a room with a two-way mirror, and then assessed the extent to which they felt they were observed. Results showed that publicly self-conscious persons as well as those predisposed toward paranoid thoughts have a heightened sense of being observed. Most importantly, results showed the orthogonal effects of paranoia and self-consciousness, so that although self-consciousness may be an important contributor for paranoid feelings the two can operate independently of each other.

In a further experiment Fenigstein & Venable (1992) replaced dispositional self-consciousness by experimentally manipulated self-attention. They used the presence of a two-way mirror in order to induce self-focused attention and experimental paranoia. Attentional focus was controlled with the use of a story-construction technique that asked participants to write stories using self-relevant words, therefore making them experience greater self-focus than the ones writing stories using other-relevant words.

As predicted, participants who wrote the self-referent story rated their stories as more about themselves than did the participants from the other-referent group. Also, the participants who wrote stories about themselves felt that they were being watched significantly more than the other-referent group did. Fenigstein & Venable (1992) interpreted their results as evidence for the presence, in a normal population, of a tendency to personalise events, that is, to make extreme internal attributions for others' behaviours and this may lead to paranoia. Therefore, paranoia is a normal cognitive process that may or may not derive from heightened self-consciousness.

Fenigstein (1997) proceeded to study the argument that paranoid thought exists in the normal population, and can be conceptualised as a self-focused style of thinking, because, as was observed in his other studies, the participants who yielded higher self-consciousness tended to demonstrate heightened levels of paranoid thought. Fenigstein (1997) wanted therefore to support the idea of a self-relevant cognitive structure and he did this by using an orienting – task procedure.

Forty-one college students completed the paranoia scale (Fenigstein & Venable, 1992) and were then asked to respond to a series of trait adjectives that were preceded by either semantic, self-referent or other-referent questions. After this, they were engaged in an incidental task for the trait terms. The major findings demonstrated that participants high in paranoid cognition, compared to those low on that dimension, endorsed paranoid traits as more descriptive of the self and demonstrated enhanced recall of yes-rated self-referently processed paranoid words. Fenigstein (1997) interpreted his results as offering support for a relationship between dispositional paranoia and a paranoid-specific, cognitive self-structure, as evidenced by the endorsement by the ones high on trait paranoia of paranoid-relevant stimuli as self-descriptive and by recall superiority of those adjectives.

This conclusion is important to note as it supports the main argument advocating that paranoia may be an evolved cognitive process that is present in a normal population. This process may, as Fenigstein (1997) suggested, be part of a general cognitive schema that is related to a paranoid – specific cognitive self-structure.

Similar to Fenigstein's (1997) experimental procedure, Bodner and Mikulincer (1998) set up an interesting experimental study about learned helplessness and the role of the attentional focus in shaping one's responses to failure (either depressive or paranoid). Bodner and Mikulincer (1998) performed five experiments to examine different manifestations of depressive and paranoid-like responses after failure in an unsolvable problem. They noticed that when the attentional condition focused on the experimenter (i.e. mirrors and video showed the experimenter's actions), participants tended to show significant paranoid reactions to failure. Conversely, when the attentional condition involved the focus on the participant (self-focus), participants tended to demonstrate depressive responses to failure. Moreover, Bodner and Mikulincer (1998) also noticed that the attentional focus on the experimenter, together with personal failure, also activated negative perceptions of the self, paranoid thoughts about the external agent and memories of past failure in which there was a salient figure to whom the blame was attributed. As it happens, these results fit nicely with the idea that some people are more sensitive to threat than others. This sensitivity to threat may therefore activate specific self-schemata whose purpose is to insulate oneself against feelings of low self-esteem and rejection. In other words, being sensitive to threat may activate paranoid beliefs; therefore paranoia could be an evolved process that responds to threat.

It is difficult to measure feelings of paranoia in a normal population because on one side, they are socially undesirable (see Fenigstein and Venable, 1992) and so people don't report them, and on the other side in their milder forms they are very similar to social anxious feelings and thoughts, making it difficult to separate them.

To further illustrate the main point, the importance of social interactions in the genesis of paranoia in a normal population is underlined by an experiment conducted by Zimbardo, Andersen & Kabat (1981), that indicated that paranoia could be induced via hypnotic suggestion of deafness. They used personality and thematic apperception tests as well as subjective and independent judges' ratings to measure paranoia in non-clinical experimental and control groups. The experimental group, unaware of the source of their deafness, became paranoid when they thought that people were whispering about them.

Further evidence in favour of our argument comes from Maher's (1988) theory of delusions. Maher argues that delusions are 'normal' attempts to make sense of abnormal and threatening sensations (e.g. hallucinations) which are discrepant with expectation. Maher argues that the cognitive processes responsible for the formation of delusions do not differ from those of non-deluded people. Maher theorises that the discrepancy is anxiety producing and perceived as significant. At this stage an interpretation (i.e. a deluded belief) is made. Thus, in relation to persecutory delusions, Maher's argument is that paranoia is a *normal* perception of an abnormal sensory stimulus that is experienced as threatening to the self. Indeed, in an initial interpretation of paranoia, Maher argues that it is a process that is normal even if the product (delusions) appears to be abnormal.

3.1. *Social aspects of paranoia in a normal population*

Research in social organizations and groups has proposed that social settings and values may construe paranoid appraisal of the environment and consequent explanatory ideas (Kramer, 1998). This means that the perceived status of an individual in a society may lead him or her to perceive the social environment in a paranoid way. In a social system where hierarchical relationships and issues of power are very important, it is quite reasonable that humans will start to perceive threat and assume that they are on danger of losing their social position, of being harmed and so on. In primitive societies, fight for territory, food, a mate and resources was vital, therefore it was extremely important to be vigilant to possible signs of threat. This is also true for modern societies, Humans still have to compete for resources, social status and mates (see Kramer, 1998). As a consequence, it is possible that some people will feel quite threatened when they have been in conflict and competitive situations for long, or have been subjected to threat and harm.

3.2. *Evolutionary perspectives for paranoia in a social context*

Under the light of an evolutionary perspective, Dixon (1998) proposed a possible link between animal defence behaviours and human self-esteem. Dixon describes an

evolutionary adaptive process known as “resource holding potential” which describes the ability to monitor the territory, food and mates. Ritualised antagonistic behaviours are those overt behaviours designed to enforce such monitoring and control. These behaviours are social displays and are designed to show aggression and maintain social equilibrium and status quo without costly physical aggression. One example of such behaviour is the display of a sarcastic laugh directed towards one’s subordinate. Gilbert (1998) also pointed out that adequate cerebral mechanisms were refined in order to send and decode social behaviours and initiate neurochemical processes that will favour particular behaviours.

The example of arousal inducing 5 hydroxytryptamine (Gilbert, 1998) is proposed to be present in greater amount in the brain when the individual is accepted in a group, whereas when the individual is rejected or loses in a social conflict, less of this neurotransmitter will be present in the brain. In a social setting, seeking acceptance from a group is vital for survival and avoiding conflict is necessary in order to maintain secure and trusting relationships. Thus, it seems to be vital that humans, like animals, have to have an awareness of their position in a hierarchy relative to others and again, this is a social process that has evolved (Dixon, 1998). This evolved process is also postulated to be analogous to, or a precursor of, social esteem in humans (Dixon, 1998).

An important aspect of the awareness of one’s position in a social hierarchy is the awareness of the experience of being a subordinate (Gilbert, 1992). This is the awareness that the individual is in some way lower in the hierarchy compared to another individual who may have power over him/her. This process of evaluating one’s position in the social hierarchy, and of comparing one’s social talents to others, is related to shame and submissive behaviours that have been linked to many forms of psychopathology, particularly depression (Gilbert & Allan, 1998). When the individual is part of a group, he/she seeks acceptance and he/she achieves this by displaying submission towards the authority in order to avoid conflict. As a result, he/she can often experience shame when her/his abilities are criticised by others. Thus, both shame and submission may be related to a sense of powerlessness and low self-esteem.

Indeed, when individuals are cast aside and rejected by others they feel extremely vulnerable and distressed, because as a consequence of evolution, humans adapted to the environment by shaping their needs into intricate human relationships and forming groups. Therefore, it is quite plausible that individuals who felt different from others and did not conform to a social group would feel “paranoid”. In other words, those individuals would start to believe that the group intended to harm them and deliberately exclude them (see Kramer, 1998).

To conclude, in an evolutionary perspective social systems have evolved in such a way that individuals have to fight for social acceptance and belonging. When social rules cannot be accepted by the individual, or one is involved in stressful competition, then it is quite reasonable that ideas of being excluded and harmed come to mind. Those beliefs of imminent harm from others are extremely important in terms of survival, because if the individual cannot be part of the social group or does not conform to the rules, he/she has to be aware of any intentions coming from the superior authority towards him/her even if those are not true. As it is often said “one has to watch his/her back”.

4. Evolutionary theories for the emergence of Psychological Mechanisms

Evolutionary psychology offers lots of evidence to support the idea of paranoia as an evolved and normal process. Evolutionary psychologists (EP) are interested in studying the evolved cognitive structure of the mind. EPs argue that much has changed since the mind evolved in the ancestral environment and behaviours observed today may or may not be adaptive. The focus of study is on psychological mechanisms, or Darwinian algorithms: that is, ‘Innate specialised learning mechanisms that evolved in ancestral populations for organising experience into adaptively meaningful schemes or frames’ (Gilbert, 1993).

Within EP adaptive problems and stresses that existed in the ancestral environment are viewed as of paramount importance. These were both physical (e.g.

warmth, food, safety) and social. Social ones included: finding a mate, maintaining reciprocal relationships, avoiding harmful individuals, acquiring status, protecting oneself from enemies, communicating with others and maintaining group cohesion. It has been argued that stresses and problems dealing with social interaction had the largest impact on the development of the human mind. EP argues that current (proximate) mechanisms evolved to deal with those problems and stresses through a process of natural selection. It is argued that paranoia could be just such an evolved process – a Darwinian Algorithm (Gilbert, 1998a).

5. The cognitive processes involved in paranoid thinking: cognitive simplification and biases

It is argued that paranoia is an evolved psychological mechanism for responding to physical or, perhaps predominantly, social stresses. In this section some of the key features of this mechanism are articulated. It is essential that any such evolved mechanism promotes thinking which is adaptive, rather than logical. There is a natural tendency to err on the side of caution and to respond to threat in a fast and simplified way- the *"better safe than sorry rule"* (Gilbert, 1998b).

One well-established finding is that of cognitive simplification (Miller, 1956). Miller demonstrated that across a range of cognitive tasks, people were limited to a processing capacity of seven plus or minus two (p. 86). Humans simplify the world to enable effective, adaptive responding. Easterbrook (1959) demonstrated that at times of high stress, still fewer cues and pieces of information are used. Janis & Mann (1977) called this 'threat rigidity' and described it as characterised by "lack of a vigilant search, selective attention, selective forgetting, distortion of meaning of warning messages, and construction of wishful rationalisations that minimise negative consequences" (p. 50). It is to be emphasised; these are ordinary responses to threat.

Gilbert (1998*b*) further elaborates this notion of fast track, narrow processing when under threat. He argues for a primitive appraisal-response system which uses simplified and crude cognitive processes, usually affect laden and often unconscious. The system is anxiety driven (fight or flight) and characterised by: hypervigilance, perceptual narrowing or tunnelling, channelled vision, fast track heuristics, simplified appraisal of information, limited use of resources, categorisation of information, attentive vigilance and poor co-ordination of memories (*ibid.*). This system is very effective in the short term. At such times individuals use cognitive distortions, or algorithms, which are organised patterns of information which tell the person how to behave. Similar concepts are used by a number of different authors who use a number of different terms, e.g. archetypes (Cosmides, 1989), imagoes (Bruner, 1996) and stereotypes (Tversky & Kahneman, 1974).

Furthermore, Gilbert (1998*b*) hypothesises that such “fast track” decision-making is an efficient method involving high affect and crudely integrated information. It would be a particularly useful strategy to deal with potentially physical threat, in which a fast decision is needed. A second, more rational and reflective processing system is proposed to build models of the world, using “logical and deductive forms of reasoning” (p. 449). These forms of reasoning, however, may be interrupted by stressful experiences, resulting in fragmented cognitive functioning (Gilbert, 1998*b*). Also, this system checks information and monitors the responses provided by the primitive system for relevance and appropriateness. It evolved therefore, to monitor errors usually caused by the inappropriate activation of a low-level system that would respond to the situation in an emotionally based way. The higher order system is responsible as well, for inhibiting any response that would be inappropriate to the environment. It monitors the activation, maintenance and de-activation of the low-level and sensory-driven one.

This being the case, the main contention is that whereas paranoia (process) belongs to the threat system, delusions (the product) seem to belong to the second higher-order system.

Related to this, Gilbert suggests that patients who come to the attention of services have come to rely increasingly on “defensive forms of processing to build their

models of themselves and the world” (1998*a*, p. 459). “Defensive” refers to behaviours associated with evolutionary physical survival (e.g. avoid rejection from the group by submissive behaviours towards dominant members).

For example, Dixon (1998) argued that ethnological strategies for defence in animals and humans consist of either aggression or flight behaviour. Flight behaviour is maintained to avoid danger or harm to the self, it has both dynamic and static forms (e.g. arrested flight) and takes precedence over other activities, including social behaviour. Thus, flight behaviour is part of a low-level, sensory-driven system that responds to the environment in a fast and uncontrolled way. Whenever the threat is inescapable, animals and humans exhibit a characteristic defensive strategy. There are several defensive strategies, for example: cryptic postures such as immobility, covert surveillance of surroundings (i.e. animals are attentive to any changes in the environment although they do not seem to be) gaze avoidance and cut-offs (i.e. humans avoid looking to the threat agent as an attempt either to demonstrate submission and the intention not to fight or to concentrate in some attack response by blocking the emotional stimuli coming in that potentially disrupt their concentration). Therefore, Dixon (1998) argued that cut-off behaviour, which reduces the input of flight-evoking stimuli is especially evident in paranoid patients and it takes an extreme form, i.e. the gaze profiles of paranoid patients are composed of eye closure, which is an attempt to mask their presence and avoid the direct attention of the threatening agent upon them. Moreover, this response can be observed whenever the perceived threat is proximal to the individual and the escape routes are hampered.

Dixon (1991) provided evidence for those assumptions. He hypothesised that paranoid patients with persecutory delusions will present cut-off behaviours such as gaze avoidance when they cannot escape a potentially threatening agent. Thus, in an interview with paranoid patients, it was found that such patients were showing an exceedingly polarised pattern of gaze, which meant that they either stared or looked away. Furthermore, when those patients looked at the therapist they lowered their head or they oriented their head away from the interviewer. This gave the impression of them looking out of the corners of their eyes thereby signalling incipient flight. Their pattern of eye

gaze also included looking away and wandering with their eyes or even closing them, i.e. cut-offs. In this way, paranoid patients' eye gaze profiles are polarised into "looking at" the threatening agent and avoiding or escaping (i.e. "looking away" or closing the eyes).

One problem with this study was that although a naïve person was observing the eye gaze profiles of the paranoid patients, there were always external variables that could be influencing their gaze profiles (e.g. noise), rather than their condition. In spite of this, it can be claimed that defensive strategies employed by humans in social situations have evolved to provide them instant comfort and avoid harm. However in the long term they can prove to be non-adaptive cognitive responses as those lead to distorted judgement.

Another approach to these cognitive phenomena stresses the importance of the processing of information about social situations (for a review see Kahneman, Slovic & Tversky, 1982). Tversky & Kahneman (1974) investigated decision-making processes under uncertainty. They found that people generally base such decisions on availability and representation heuristics rather than "rational" probability statistics. In other words, people's experience is over-represented in the way in which decisions are made, giving rise to perceptual and judgement biases. In one experiment, they gave participants stereotypical descriptions of people, and choices of types of occupation in which they may work. As might be expected, the choices of occupation matched people's stereotypical representations of people working in those occupations. This is yet more evidence that people rely on simplified models of the world in order to make decisions involving complex information. In the present context, it is yet further evidence that normal reasoning is rarely logical. Humans are prone to cognitive biases and distortions, which are functionally adaptive. These biases are related to evolutionary survival behaviour, including that of social group formation.

6. Further links with contemporary clinical cognitive models

The main argument that paranoia is a normal and evolved process with certain defining features is consistent with certain contemporary cognitive models for cognitive therapy of mental disorders.

Teasdale (1997) argued that within cognitive therapy the “rational argument” or corrective information is most often very ineffective in changing emotional response, even when the client rationally acknowledges the logical power of evidence. This is because there are two types of beliefs that humans form when giving meaning to the world: one is the “intellectual” belief, whereas the other is the “emotional” belief or “hot” cognitions, such as the ones present in the paranoid appraisals of the environment.

Similarly to what is advocated here Teasdale (1997) proposed a comprehensive information-processing framework that he denominated of ICS (Interactive Cognitive Subsystems). Amongst several main ideas that are advocated by Teasdale in this model, one is of relevant importance. He argues that this system has two kinds of meaning, a relatively specific meaning at the *propositional level* and a more generic “holistic” meaning at the *implicational level*. The *implicational level* is similar to what it is argued to be the primitive system. This level represents a more holistic type of meaning that is difficult to convey because it does not map directly into language. Meanings at this level represent interrelationships between concepts and prototypical features extracted from the patterns of specific meanings and sensory features from experiences.

Also, according to Power (1997) and the proposed Schematic Propositional Associative Analogical Representation Systems’ Model (SPAARS), meaning at the *implicational level* is achieved by an automatic and direct access route from the *analogical level* (which includes all the sensory systems) to the *associative level* (or *implicational level* in Teasdale’s terms). Emotion generation via this route is fast and automatic so information fails to reach consciousness but it still has an impact on the higher order system or the Schematic level (as proposed by Power, 1997). Therefore hot cognitions that are elaborated at an *implicational level* or *associative level* or at the primitive-systems’ level may influence higher-order thought. This being the case, changes to propositional and higher order premises such as “I am worthless!” need initial

modifications at the *implicational level* of meaning that may be sustaining this belief by feeding affective experiences to the *propositional level*. One of the ways to do that is by stopping negative information from the environment being perceived emotionally by providing a nice and relaxing environment to the patient. The other is by activating the emotion schemes to produce conscious awareness and emotional arousal. Symbolisation would then be the awareness of bodily felt experience to create the conscious awareness and evaluation of and reflection on symbolised material to provide meaning and identity.

7. Research implications

The main hypothesis is that paranoia is a normal process, that is fast track, automatic and serves the appraisal of affective information relevant to the self.

Further studies should therefore continue to research the presence of paranoia in a normal population. Since paranoia is dispositional, that is, it is stronger in some people than in others, studies can be implemented where individual differences in paranoid responses can be measured (e.g. Fenigstein, 1997).

Other studies can determine if, in the normal population, the proposed mechanisms are operative in paranoia. Those studies could use methodologies used to study the cognitive mechanisms present in social anxiety.

One example of an experiment would be the following: a computer task that uses face stimuli that can be divided into three different expressions (happy, angry or fearful and neutral). Faces are considered to be good stimuli to present to people who are assumed to be hypervigilant to threat because they are part of their social world, therefore yielding ecological validity (see for example Mogg & Bradley, 1999).

Usually experiments on unconscious appraisal of threat employ the modified dot-probe task (Mogg & Bradley, 1999). This task consists of presenting a dot or two letters (for example E and F) and asking participants to press a button as quickly as they can when they see the dot. The presentation of the dot would alternate with the presentation of a pair of faces during 500 msec. In half of the trials, the onset for the presentation of

the pair would be 500 msec, and in the other half, the duration of presentation would be 1250 msec, allowing for a more in depth appraisal and probably conscious attending to the stimuli. It is assumed that individuals who show paranoia would respond faster to a dot when the threat face of a pair primes this one.

8. General Conclusion

This chapter is an attempt to put forward the idea that paranoia is a normal and evolved process that may be best explained by cognitive and social evolutionary theories. It is reasonable to argue that a primitive system that evolved to deal with threat information may be in charge of paranoid feelings, as it is fast track and entails affective components of stimuli. If individuals did not feel paranoid once in a while, how would they survive in extremely competitive environments? Being aware of the mistreatment of others towards oneself is an important strategy for survival that evolved throughout the evolutionary and social history of human beings.

Paranoia has an interpersonal component: “the others are against me”. This component may be the result of a process of evaluation of one’s social attractiveness to others and consequent criticisms and rejection from others that elicit shame, feelings of low self-esteem and submissive behaviours that are linked to psychopathology (Gilbert & Allan, 1998).

Chapter 2

Literature review on Paranoid Delusions

1. Introduction

The literature on paranoid delusions reveals a number of studies that treat paranoia as a psychotic symptom that is present in several mental disorders, as for example in paranoid schizophrenia. Under the light of the psychiatric medical model, research on paranoia has studied delusions with paranoid features, i.e. ideas of being harmed by others.

Paranoid delusions are defined by the maintenance of beliefs about the world and oneself that seem bizarre, false and incongruent to other people (Garety and Freeman, 1999).

This chapter will describe the most recent theories for paranoid delusions and at the end there are a few criticisms to the research paradigms and theoretical framework for delusions.

It might reasonably be asked: how can those studies in deluded individuals enlighten knowledge on the main features of the cognitive distortions present in paranoia? The answer is that many of the studies on clinical populations do not focus on the delusions themselves. Rather, they place individual in experimental conditions and observe cognitive processes, such as hypothesis formation and maintenance, sometimes with threatening stimuli and sometimes not. That is, they commonly observe paranoia as process, albeit with a wish to extrapolate to delusions. This is why it was necessary to review the literature on paranoia (although it is advocated that it has proved not to be useful and even misleading to the study of paranoia) and to provide an insight to their findings, while criticising their theoretical background.

Indeed, most studies on paranoid delusions lack a proper definition for the phenomenon of paranoia, which means that their conclusions are unreliable. The main goal of this research is to provide a descriptive observation for paranoia as a normal and evolved process.

1.1. Maher's theory for paranoid delusions

In an attempt to explain such a distorting experience of reality, Maher (1988) offered a cognitive account of delusions that emphasised the implicit distortions of perception. He argued that people who suffer from delusions have a heightened sensitivity to sensory input. That is, as the deluded individual is faced with such a variety of intensive sensory material, s/he will establish an ongoing explanation for it through the use of a normal cognitive mechanism. Thus, delusional beliefs to Maher (1988) are best described as explanatory hypotheses concerning abnormal perceptions of threat.

Evidence in favour of this account comes from, for example, the observation that delusions occur in several medical and physiological conditions, which according to Maher (1988), indicates that delusions are an adaptive function to deal with the disturbance. Moreover, further evidence has demonstrated that irrational beliefs can develop in the general population under disturbing and odd environmental conditions, such as undetected hearing loss conditions (Zimbardo, Andersen and Kabat, 1981). Nevertheless, although Maher's account is important in positing that delusions are the explanation of experience, it fails to capture the changes that occur in the individuals' cognitive system. Indeed, the most recent literature on the field has argued against Maher's convictions. This literature has argued that people with paranoid delusions demonstrate different cognitive processes (e.g. attributional biases) from those demonstrated by the general population (Slade and Bentall, 1988).

1.2. Frith's Theory of Mind for paranoid delusions

Since Maher's first attempt to unveil paranoia, other accounts have been put forward to explain this phenomenon. One of those was Frith's (1992) theory of mind.

Frith (1992) stated that delusions of reference and persecution are due to an inability to understand other people's beliefs, emotions and thoughts. This theory was

initially developed for people with autism and has been applied to people with paranoid delusions. The main hypothesis argues that people who suffer from paranoia will show a deficit in their theory of mind. This deficit is supposed to arise from the breakdown of the system which regulates one's actions and preceding intentions (i.e. a self-monitoring deficit).

Frith and her colleague Corcoran (1996) plus Corcoran, Cohill and Frith (1997) tested the theory of mind in paranoia.

In both studies, not only were there a normal control group and a smaller psychiatric group, but both Corcoran et al.'s (1997) and Frith et al.'s (1996) studies tested patients with a diagnosis of schizophrenia that was classified according to their current symptoms into subgroups: with negative symptoms at the top of the hierarchy and remission at the bottom.

Those studies employed a variety of tasks, both verbal and non-verbal (e.g. visual tasks that included pictures or cartoons depicting a scene) in nature. Thus, most tasks required participants to infer about the mental states (e.g. feelings, intentions and thoughts) of others. Also, those tasks were divided into first and second order theory of mind's inferences that varied according to their level of difficulty.

The first order tasks demanded the understanding of the character's beliefs about the world (e.g. Sally and Anne's story). Conversely to the first order tasks, the second order ones are more complicated to solve, as they require the participant to make inferences about someone's beliefs about another person's beliefs and intentions (e.g. the ice-cream story). The second order tasks are specifically sensitive to deficits in the theory of mind. This is the case as when an individual cannot infer the beliefs that are presented by another individual concerning a third person's intentions, s/he will present false and odd beliefs about other people's emotions and thoughts. Therefore, paranoid people are thought to fail in second order tasks as they present false beliefs concerning other people's thoughts, intentions about another person's desires and feelings. In other words, the paranoid individual *believes* that the other *wants* to hurt him or her because this person *believes* he or she is for example a bad person.

Frith and Corcoran (1996) supported the hypothesis of a theory of mind deficit in the paranoid subgroup and the consequent absence of this deficit in other subgroups.

Furthermore, a study by Kinderman, Dunbar and Bentall (1998) also showed evidence for deficits in the theory of mind in people that have a paranoid attributional style. Kinderman et al. (1998) noticed that the students that presented theory of mind deficits in a task similar to the ones described above also demonstrated an increased tendency to identify individuals as responsible for negative social situations. Those individuals that presented deficits in evaluating other people's wishes, desires and thoughts compared to the ones that did not present deficits in their "theory of mind" preferred to personalise negative events instead of attributing the causes to external circumstances.

In spite of those studies demonstrating results that support the hypothesis that people who lack a theory of mind will be presenting with paranoia, a study by Corcoran et al. (1997) failed to demonstrate support for the same hypothesis.

Therefore, it can be argued that it is not evident that people with paranoia demonstrate a deficit in their theory of mind. As most studies in this field fail to control for the participants' IQ, it can be hypothesised that maybe, the contradicting evidence in this field is due to methodological problems, i.e. people with paranoia may sometimes fail in tasks that require a theory of mind because they do not understand their content (see Doody, Gotz, Johnstone, Frith & Cunningham-Owens' study, 1998). Moreover, one can also wonder whether or not people with paranoia have a theory of mind. It seems reasonable to assume that they do, as they can infer other people's beliefs, intentions and underlying emotions. However, it also can be argued that the theory of mind that is present in people with paranoia is distorted as it does not correspond to the standard view of reality, i.e. people with paranoia may demonstrate a misinterpretation of the mental states of others.

1.3. Garety et al's (1991) cognitive theory for paranoid delusions

Another line of thought for paranoia has been followed by Garety, Hemsley and Wessely (1991), who proposed the jump-to-conclusions theory. For example, Garety and Hemsley (1994) devised a multifactorial model upon the initial hypotheses proposed by Garety et al. (1991). This model emphasised the role of past experience, affect, self-esteem and motivation as contributing factors for some delusions.

On the other hand, Garety and Hemsley (1994) also pointed out that for some delusions there is the prominent presence of a *jump-to-conclusions bias*. A jump-to-conclusions bias can be defined as a tendency to make rapid and overconfident judgements on the basis of little information. In order to test for a jump-to-conclusions bias, most studies on probabilistic reasoning adopted a Bayesian model of probabilistic inference. This model not only measures valid conclusions or reasoning errors, but it also delineates the way conclusions are reached.

A typical Bayesian study therefore includes probability judgements. Those judgements are tested by showing participants pairs of containers, labelled A and B. Both containers have inside a large number of items, such as beads of two different colours within a particular ratio, as for example 100 beads that can be divided into 85 red and 15 green and vice-versa. Participants are then told about the proportion of items and the containers are removed from view. They are also informed that the initial probabilities of the containers to be chosen are always 50A: 50B (i.e. they are equal). One of the containers is then chosen, and a bead is taken from it and shown to the participant (note that the container is hidden from view). The study continues with beads being drawn sequentially. Participants are also told that beads are being selected randomly, when they are not, they are predetermined according to the ratio of the two colours. Thus the aim of the task is to determine whether the experimenter is drawing from container A or B. Usually, the study presents two conditions: the "draws to decision" and the "probability estimates". In the draws to decision, the participants can determine how many beads are drawn and the trial is terminated once they state they are certain about the choice. On the other hand, the probability estimates' condition asks participants to indicate at each stage

in the sequence estimates of the probability of one container having been chosen rather than the other. Essentially, studies that used this model, demonstrated that in the general population, there is a tendency to be conservative when making probability judgements, requiring more draws than the Bayesian theorem would predict to reach a decision (Edwards, 1982).

Following this rationale, Garety et al. (1991) thus predicted that in the Bayesian inference task, people with delusions would make faster judgements than the other clinical and non-clinical controls. Furthermore, they also tried to examine the readiness of participants to switch their hypotheses when given potentially contradictory evidence. Indeed, Garety et al.'s study (1991) found evidence for a jump-to-conclusions bias in patients with paranoid delusions. Their study presented results that supported the hypothesis advocating that people with paranoid delusions when compared to "normal" and other psychiatric disorder control groups, tend to make faster judgements and to switch their hypotheses more readily when contradictory evidence is presented to them.

Other studies further defined the characteristics of this bias by demonstrating that firstly, it is not a function of a memory deficit since results were not changed by the use of a memory aid (Dudley, John, Young and Over, 1997) and secondly, it also tends to be more salient with emotionally salient material, i.e. people with delusions tend to form hypotheses faster than others (by using less material) when they are dealing with emotional material (Dudley et al., 1997).

On the other hand, however, Young and Bentall (1997) failed to replicate the findings of these studies. They did not find evidence to support the existence of a jump-to-conclusions bias in deluded patients when performing a task about probabilities.

The reasons behind Young and Bentall's study (1997) failure to find a jump-to-conclusions bias were not only due to their different bead ratio but because they used different selection criteria for people with delusions (diagnosis: types of delusions) and they also selected different clinical control groups. This being the case, the differences between studies may have influenced the interpretation of results (Garety and Hemsley, 1999). Considering that most studies use different selection criteria for people with delusions then one cannot argue that people with paranoid delusions do necessarily have

a jump-to-conclusions bias (or a probabilistic reasoning bias, which is the inability to make predictions from the information that is presented).

In this way, what conclusions should be reliably reached from the evidence presented by Garety et al.?

In a review of the studies that have been done about a jumping-to-conclusion bias in paranoid participants, Garety and Freeman (1999) have concluded that "... people with delusions do not, it seems, have a probabilistic reasoning bias, as Garety and colleagues have previously suggested, in that they can estimate probabilities, but have a data gathering bias p. 131." A data gathering bias (according to Garety and Freeman, 1999) refers to the willingness to accept a hypothesis on the basis of less evidence. Although the data gathering bias can lead to the acceptance of incorrect hypotheses, it does not affect the capacity to reason in a coherent and effective way.

1.4. Bentall et al's (1994) theory for paranoid delusions

Bentall, Kinderman and Kaney (1994) proposed one other theory to account for paranoid delusions. They claimed that people with persecutory delusions use them to maintain self-esteem and to avoid conscious acknowledgement of inherent discrepancies between the actual self and the ideal self. Therefore, one of the mechanisms used by people with persecutory delusions to maintain a positive view of themselves is a bias for the attribution of negative events (Kinderman and Bentall, 1996). This attributional bias involves the tendency of people with persecutory delusions, when compared to depressed and normal controls, to attribute negative events to external causes (normally to other people).

One problem with this rationale is the concept of self-esteem: how it is defined and how it is studied. As Smelser (1989) beautifully puts it "We have a fairly firm grasp of what is meant by self-esteem, as revealed by our own introspection and observation of the behaviour of others. But it is hard to put that understanding into precise words (p.9)". However, it is generally accepted that the concept of self-esteem entails a cognitive

element, that is, self-esteem means characterising some parts of the self in descriptive terms: power, agency and confidence. There is also an affective component to self-esteem. This element includes a valence or degree of positiveness or negativeness attached to those facets identified (i.e. high or low self-esteem). Finally, there is an evaluative component, an attribution of worthiness according to some ideally held standard (i.e. the relation between different sets of attitudes).

From the psychological literature, most studies that use a self-esteem tool only measure the affective and evaluative components of self-esteem. This is problematic because these studies may be measuring something else rather than self-esteem (e.g. worthiness). Moreover, there are also measurement problems regarding self-esteem that most studies fail to control for. Indeed, most instruments for measuring self-esteem are not sensitive to the various areas of life where competence, worthiness and challenges are likely to be involved and they also ignore the potential self-esteem's fluctuations or changes with time. In this way, can it be argued in a reliable way, that people with paranoia have low self-esteem?

Bentall and Kinderman's ideas (1998) about persecutory delusions were based on earlier work performed by Zigler and Glick (1988). Zigler and Glick (1988) have suggested that paranoia, as a matter of fact, was simply a form of camouflaged depression.

Following this rationale, a recent study by Chadwick and Trower (1996) found evidence that paranoia is a defence against low self-esteem. Indeed, Chadwick and Trower (1996) noticed that when they were exploring the negative evaluations present in the study (self/self, other/self and self/other), the paranoid group as well as the depressed group, tended to attribute more negative other-self evaluation (i.e. threat or malevolence) than controls. Moreover on one hand, as predicted, depressed groups tend to demonstrate negative self-self evaluations (i.e. they tend to be aware of their low self-esteem). On the other hand, paranoid groups tend to make significantly more negative self-other evaluations than depressed and normal controls. This result thus confirms the theory that paranoia is a way of defending against low self-esteem and a response to threat to the self.

However, and again, there are some issues here to be considered when assessing self-esteem. Chadwick and Trower (1996) used the Evaluative Beliefs Scale to measure the relatedness to others and self-definitions. This scale may be thus measuring a sense of worthlessness, helplessness, rejection from others but not self-esteem. Therefore, an alternative explanation for Chadwick and Trower's results (1996) could be found in the hypothesis (suggested by the methodological problems encountered when measuring such a broad concept as self-esteem) that paranoia is not a defence against low self-esteem but a result of feelings of worthlessness and helplessness.

Apart from this study, a myriad of experimental findings support Bentall and Kinderman's account (1998). One line of evidence is concerned with the attributional style; the other is concerned with discrepancies between overt and covert self-esteem. For example, a study by Kaney and Bentall (1992) found that participants with persecutory delusions demonstrated a *personalising* bias for negative events (i.e. they tend to blame other people for negative events) in comparison to both depressed and non-clinical controls. However, Kaney and Bentall (1992) found (against Bentall and Kinderman's predictions, 1998) that patients with delusions make external attributions of blame for bad events and take credit for good events. Therefore, Kaney and Bentall (1992) concluded that the attributional bias that is presented by people with persecutory delusions is not an externalising or self-serving bias. Instead this bias seems to be a tendency to blame other people when things go wrong, i.e. people with paranoid delusions tend to personalise negative events and blame other people.

Although there is evidence for an attributional bias in persecutory delusions, one should be careful and not generalise the findings in people who have persecutory delusions to all delusions. Indeed, Garety and Freeman (1999) have argued against a primary aetiological role of attributional style in the genesis of delusions, but they do suggest that attributional style can shape the content of one's delusions, i.e. the attributional style can form delusions of persecution but not of all other kinds (e.g. punishment).

There is one line of evidence that supports the proposal that persecutory delusions act as a defence against threat. Since most studies, when measuring the discrepancy between overt and covert self-esteem, had to struggle with methodological and conceptual problems: “how does one measure internal and unconscious constructs of self-esteem?”

A study by Lyon, Kaney and Bentall (1994) managed to measure covert and overt self-esteem in a clear and valid way. Basically, Lyon et al. (1994) used a parallel form of the attributional style (ASQpf) questionnaire to measure overt self-esteem and they compared the responses in the attributional style questionnaire to the responses obtained in a pragmatic inference task (a questionnaire disguised as a memory task that requires participants to make attributions) which is supposed to measure covert self-esteem. Lyon et al. (1994) found that as predicted, people with persecutory delusions in an overt measure of self-esteem would make more external attributions for negative events when compared to depressed and normal controls. However, when making unconscious attributions (i.e. when people who suffer from persecutory delusions are attributing causes without being aware that they are doing so), people with persecutory delusions do not differ from depressed controls but they differ significantly from normal controls. That is, people with persecutory delusions attribute negative events to themselves, i.e. they think they are the cause of bad things, which demonstrates that people with persecutory delusions have low self-esteem but they are not aware of it. As people with persecutory delusions are not aware of their low self-esteem their paranoid delusions will act as an ego mechanism against low self-esteem and in favour of a grandiose self.

Although most studies about covert and overt self-esteem do find evidence for low self-esteem in people who suffer from delusions, again one should be cautious with the interpretation of the results. Firstly, most studies use only a paranoid subgroup, the persecution paranoid delusion group. Therefore, low self-esteem may not be the genesis of a delusional disorder but only as Birchwood and Iqbal (1998) suggested a reaction to the experience of psychosis as a traumatic event and not a cause for the onset of a disorder. Secondly, most studies do not control either for the number of years participants have been hospitalised or their current medication and their IQ. Those variables are

extremely important because they can have extraneous effects on the studies. Moreover, as these studies do not control for those variables they will present deforming conceptual problems because they do not manage to provide a clear picture concerning the onset of a delusional disorder and the cognitive mechanisms involved in the change occurring in the individual's cognitive world. One of the reasons for this being the case is the predominance of maintenance models in research on paranoia. This means that most models demonstrate and measure the descriptive features of paranoia and not the causes.

1.5. Summary of theories for paranoid delusions and concluding comments

Several accounts for paranoia have been proposed throughout the years. These include the theory of mind deficit (Frith, 1992), the probabilistic reasoning bias (Garety et al. 1991) and the self-esteem and attributional theory for paranoia (Kaney and Bentall, 1992). Recapitulating, it can be argued that there is some evidence for a general reasoning bias in paranoia. This reasoning bias can be best described as a data-gathering bias, i.e. a tendency for people with delusions to gather less evidence than controls and to be more liberal in their predictions (Garety and Freeman, 1999). There is as well some evidence for an attributional bias in people with persecutory delusions. This bias is assumed to lead to the externalising of blame for negative events, i.e. people with persecutory delusions will tend to blame other people rather than situations when things go wrong (Kaney and Bentall, 1992). However, there isn't any reliable evidence for the claim that this attributional bias functions in order to protect one's self-esteem. In addition to this, most studies are cross-sectional and demonstrate associations rather than causes, i.e. they elaborate maintenance models for paranoia that cannot claim that for example, that low self-esteem is a probable cause for the onset of paranoid delusions.

Thus, it seems that although there are some valuable conclusions to be taken from the literature in paranoid delusions, there are also methodological and conceptual

problems. One of these concerns the use of a single symptom approach to research in paranoia. As Persons (1986) argued, there are a number of advantages to the use of this approach: the avoidance of misclassification of participants and the isolation of single elements of pathology for study are just examples of these. Nevertheless, a single symptom approach has the disadvantage of missing out the complexity of the individuals with delusions (frequently clusters of symptoms occur and therefore more detailed diagnostic criteria are needed). Furthermore, when researchers adopt a symptom approach they need to be aware of the multidimensional nature of delusions. This is not the case, as most studies adopt a categorical view for delusions, treating them as present/absent. Thus, those studies completely ignore several important characteristics of delusions such as the degree of conviction, distress, preoccupation and action which are relatively independent, differing in a continuum and tending to fluctuate over time (Garety and Hemsley, 1994). Without clear criteria to define delusions, the assignment of participants to subgroups will be biased and differential, i.e. it will depend on the researchers' diagnostic criteria. The lack of clear criteria for delusions can therefore lead to different results in the literature.

The way forward therefore, is to measure the multidimensional nature of delusions and be aware of the cluster of symptoms present in delusions: their constitution, onset, maintenance and current status. In addition, certain variables such as the participants' IQ, medication, years of hospitalisation, overall psychopathology and anxiety should be controlled for. Indeed, most studies in paranoia not only fail to control for these variables but also fail to provide details on the process of participant recruitment, their characteristics and the methods used for allocation of participants to groups. This is clearly problematic regarding methodological issues, because studies fail to define their experimental and control groups (i.e. which people comprised their groups, when they developed the disorder, what type of disorder they present and so on). This is the case, as many studies combine in a supposedly classified persecutory delusion group, delusions of reference and grandiose delusions (Garety and Freeman, 1999).

1.6. Future research in paranoia

After reviewing the most recent literature on paranoia it was decided that they failed to provide the best account for this type of phenomena. A totally different perspective for the study of paranoia was introduced in the first chapter.

In the next chapter, the main argument under the new perspective for research that paranoia is a psychological experience will be tested in an exploratory study of paranoia in a college student sample. The main hypothesis advocates that some people from the normal population should report an experience of paranoia. This being the case, paranoia shouldn't be considered as a psychotic symptom present in a clinical population but a "normal" process of appraising information in the social context. As there was evidence supporting the argument for the presence of episodes of paranoia in a normal population the next step in research tried to explore the nature of the attentional mechanisms sustaining "paranoid" information processing. The main research question asked how people that report dispositional paranoia differ from others when processing and interpreting threatening information from the environment. The results and conclusions from those studies will be discussed in more detail in the next two chapters

Chapter 3

Paranoia in a college student sample: An exploratory study

Abstract

The nosological definition of paranoia is important for psychiatry and abnormal psychology. Most studies in paranoia have tackled the cognitive mechanisms behind the maintenance of paranoid delusions (see Garety & Freeman, 1999). This study on the other hand, intended to demonstrate that paranoia exists in a college student sample and therefore it shouldn't be simply treated as a psychotic symptom and that it has particular characteristics.

Results supported the hypothesis that argued that some individuals from the normal population report feelings of paranoia, and that those feelings have subjective features.

Discussion of results tackles the importance of exploring the presence of paranoia in a sample from a normal population in order to provide a clear definition for the phenomenon and also the important need to lessen the stigma that society still has against paranoid schizophrenia and mental disorders in general (Link, 1982).

“Just because you are paranoid, it doesn’t mean they are not out to get you.”

1.1. Introduction

In certain social contexts, paranoid cognitions include the suspicions even without sufficient proof of otherwise that others are harming, deceiving or exploiting them: preoccupation with unjustified doubts about the loyalty, or trustworthiness of friends and associates and also a reluctance to confide in others as the information provided can be used against themselves (Robins and Post, 1997). This means that in a social situation, individuals feel paranoid when they think others intend to harm them in some way.

One example of someone who experienced paranoid feelings and thoughts is that of the famous writer H. J. Hemingway. Hemingway fiercely believed that the FBI was spying on him because they suspected him of liaisons and sympathising intentions towards communism. At the time, Hemingway had been suffering from a long history of alcoholism and depression. People connected to him thought he was being paranoid: there were no bugs in the house, and no spying and stalking from the FBI. On several occasions, Hemingway would get angry because he believed people in the bar were watching and persecuting him.... Surprisingly enough, one might think, Hemingway’s beliefs were proven to be true. After he died, the head of the FBI confirmed that they were spying on him because of suspicions of communist liaisons.

Thus, it can be concluded that paranoid feelings and thoughts may not be restricted strictly to clinical populations and there may be a reason for them.

1.2. Paranoia in normal populations

From a clinical perspective, according to the ICD9 (WHO, 1977) paranoia can be described as “ a rare psychosis in which logically construed systematised delusions have developed gradually without concomitant hallucinations or the schizophrenic type of thinking. The delusions are mostly of grandeur, persecution and somatic abnormality....”

This research studies a particular type of paranoia: the persecution type, which is characterised on clinical grounds as presenting delusions that include beliefs that one is plotted against, talked about maliciously behind his/her back, spied upon, threatened and

a general sense of being the victim of a conspiracy (Diagnostic Statistic Manual - IV, 1994).

Those definitions are described here to provide an idea about how paranoia is defined in the clinical grounds. However, as there isn't a clear definition for this phenomenon (see Freeman & Garety, 2000) and as this study tackles paranoia in a normal sample of people, the types of feelings presented by those people would be considered paranoia only if they have a belief of a clear intention of harm from the others. That is, the important feature in paranoia to consider is the *malevolence* (see Freeman & Garety, 2000). The other features of paranoia that are observed in a clinical population may not be applicable to a population of college students. This is because research on this topic in a normal population only found persecutory features of paranoia (see Fenigstein & Venable, 1992 and more recently Martin & Penn, 2001).

In order to understand the paranoid phenomena, recent social psychological research has suggested that in milder forms, paranoid cognitions seem to be quite prevalent among normal individuals. For example, Fenigstein and Venable (1992) elaborated a study where they presented college students with a questionnaire composed of statements that described paranoid feelings and thoughts. Fenigstein & Venable (1992) constructed their scale for paranoia by choosing items of the paranoia subscale of the MMPI and items from other scales that included the beliefs that people are trying to influence one's behaviour and are against you in many ways. The items that contained references to delusional content were taken out of the questionnaire. Fenigstein & Venable tested this scale on 4 different samples during a time scale (1981-1995). Their samples were of a considerable size ranging from 119 to 180 people. Fenigstein & Venable also reported coefficient alphas for the reliability of their scale that were high (ranging from .78 to .89), making this measure a good one to be tested in a normal population.

Results demonstrated that a large percentage of students reported mild general feelings of paranoia (at least 62% of students endorsed a paranoid scale item as being slightly applicable to the self and 32% reported paranoid items as being somewhat

applicable to the self) and also that these can be seen in “their everyday behaviour...(with) manifest characteristics - such as self-centred thought, suspiciousness, assumptions of ill will or hostility, and even notions of conspirational intent - that are reminiscent to paranoia.”(p.130) In addition, these feelings tend as well to be masked, that is not clear and perceptible to the other, because of social desirability constraints and are extremely related to a heightened self-consciousness, i.e. to a higher availability of knowledge of the private and public self to the self. The authors thus concluded that the nosological concept of paranoia has to be broadened to include normal everyday thought processes that occur when a certain situation is presented to the individual. Those paranoid cognitions demonstrate feelings of a conspiracy theory, which is certainly deemed by others under the light of societal values and social desirability as eccentric and irrational. As Fenigstein and Venable (1992) argued, there are many social occasions where people feel that “they are being talked about or feel as if everything is going against them, resulting in suspicion and mistrust of others, as though they were taking advantage of them or blame for their difficulties.” (P.133).

In support for their claims, findings from several recent surveys found that paranoid like perceptions involving the perception that one has been the victim of a conspiracy are far from uncommon, but these are transitory as well i.e. they are not stable (Butler, Koopman & Zimbardo, 1995; Pew, 1996).

In favour of the hypothesis that paranoia is present in a sample from the normal population and is not just a symptom seen in psychological disorders, an evolutionary perspective would argue that paranoia is a “normal” cognitive process, which enables people to deal with the environment. Through years of evolution in terms of evolving capacities and abilities, natural selection enabled humans to perfect their systems. Paranoia in an initial stage can be assumed to be a product of evolution together with the individual’s ontogenetic experience. In the light of the theory of evolution, persecution paranoia can be part of the “natural” and biologically equipped threat appraisal-response system (Gilbert, 1998*b*).

In a social system where hierarchical relationships and issues of power are very important, it is quite reasonable that humans will start to perceive threat and assume that

they are in danger of losing their social position, of being harmed and so on. In primitive societies, the fight for territory, food, a mate and resources was vital, therefore it was extremely important to be vigilant to possible signs of threat. This is also true for modern societies, humans still have to compete strongly for resources, social status and mates (see Kramer, 1998). Thus, it is possible that some people will feel quite threatened when they have been in conflicting and competitive situations for long, or have been subjected to threat and abuse.

Also, according to Gilbert and Allan's (1998) *social ranking theory*, stimuli perceived as powerful and threatening activates self-defensive and self-protective responses, including submissive and escape behaviour. The appraisal of social subordination to another stems from a process of social comparison serving the formation of social ranks. One's place within society not only involves a comparison of relative strength and power but also social attractiveness and talent.

Most important to any individual in human society is the feeling of belonging to and acceptance from a social group. Membership of a group is defined by a process of self and others' categorisation of the individual in a variety of ways. These include categorisations based on physical attributes, such as age, race or gender as well as categorisations based on social attributes, talents and status such as social class, religion and so on.

Research on aspects of social cognition (see Kramer, 1998) has suggested that individuals who have token status in a social system because they feel that they are different from others and their perceptions reinforce even more their distinctiveness, will be more self-conscious and perceive themselves to be under evaluative scrutiny to a greater extent than non-token members. When those individuals are cast aside, they feel extremely vulnerable and distressed, because as a consequence of evolution, humans adapted to the environment by shaping their needs into intricate human relationships and groups. Therefore, it is quite plausible that individuals who felt different from others and did not conform to a social group would feel "paranoid". In other words, those individuals would start to believe that the group intended to harm them and deliberately exclude them. This being the case, *paranoia clearly has not only a cognitive but also a social component to it*

that is related to the interpersonal aspect of human relationships. Indeed, paranoia tends to be the natural response to certain situations and stresses happening in the social limelight.

Despite the contributions of many theories for the onset and maintenance of persecutory delusions and alternatively to those research programs, what was intended in this study was to demonstrate that milder forms of paranoia do exist in the normal population, and they yield subjective characteristics. That is, apart from having general feelings of persecution, several people can report idiosyncratic experiences of harm from others and they can elaborate paranoid cognitions on those feelings. Contrary to most studies in paranoia (see a review from Garety and Freeman, 1999) this study intended to address paranoia not in a clinical population but in a normal one. The rationale behind this study's aims was that paranoid cognitions are assumed to be part of normal thought processes and responses to the environment. The study could not imply any causal relationship between levels of paranoid thoughts in the population and maladaptive coping with the development of persecutory delusions. Instead, the main goal of this study was therefore to "normalise" paranoia by demonstrating how "normal" thinking processes can lead to paranoid feelings and thoughts that alter with time.

1.3. Methodological issues

The methodology that was employed to test for the study's hypotheses has been drawn from studies that have measured the prevalence of ritualistic behaviour and intrusive thoughts in the normal population. The main argument advocated in those studies was that obsessive and compulsive symptoms could be present in a sample from the normal population. A cross sectional study by Muris, Merckelbach and Claven (1997) investigated the incidence and characteristics of ritualistic behaviours in the normal population. The methodological procedure involved asking college students to fill in a questionnaire devised by the researchers that enquired about the presence of idiosyncratic rituals and their dimensions in the normal population. This questionnaire included some

examples of idiosyncratic rituals and participants were invited to list and specify the rituals that they themselves performed. Participants were also asked to rate their rituals in terms of their frequency; resistance; senselessness; intensity; level of discomfort elicited; relation to thought and relation to mood. Finally, participants were also required to complete the Maudsley Obsessive Compulsive Inventory (MOCI) that includes 30 true-false items, which pertain to obsessive-compulsive items.

Muris et al.'s (1997) results supported the hypothesis that ritualistic behaviours are part of the myriad of behaviours displayed by the normal population. Of the 150 participants, 80 reported that they performed ritualistic behaviours and they had higher MOCI scores than the ones who did not perform ritualistic behaviours.

Similar to Muris et al.'s research, a study by Freeston, Ladouceur, Thibodeau and Gagnon (1991) studied the response styles to cognitive intrusions. Freeston et al. (1991) therefore tested these responses by asking university students to fill in a questionnaire describing and evaluating seven cognitive intrusions and inventories of depressive, anxious and compulsive symptoms. Results showed that 99% of participants reported intrusions and 92% reported effortful strategies in response to intrusions in their repertoire. Response styles were divided into three types: no effortful response (i.e. ignore the thoughts) and two effortful responses: attentive thinking or escape and avoidance. Both effortful responses seemed to be more maladaptive responses to intrusive thoughts than the no effort response style. Thus, Freeston et al. (1991) speculated that probably the people who demonstrated avoidance strategies to intrusions should be more at risk of developing an obsessive-compulsive disorder.

More recently, a study by Rassin, Merckelbach, Muris & Stapert (1999) investigated the differences in rituals between students who were habitual suppressors or non-suppressors as measured by the White Bear Suppression Inventory (WBSI). As it was observed before in the other studies, this study also used questionnaires to measure thought suppression and rituals in the normal population. Results showed that students who seemed to score high in the WBSI, experienced the rituals as more intense, discomforting and resistance-provoking than the ones who scored low, i.e. the non-suppressors. This being the case, these results were congruent with Freeston et al.'s

(1991) previous research that argued that thought suppression and avoidance behaviours can be maladaptive coping strategies.

By taking into account the methodological problems demonstrated by these studies (such as in Muris et al.'s study where they did not define what ritualistic behaviours are, which means that participants could have been reporting behaviours other than ritualistic), this study tried to investigate the characteristics of persecutory paranoia in the normal population. Furthermore, contrary to the other studies in intrusive thoughts, this study provided not only a definition for paranoia but also gave the opportunity for participants to report idiosyncratic experiences of this phenomenon.

The methodology that was employed drew on the studies described above on obsessive compulsive disorders. Therefore, this study's format as a questionnaire exploratory study was made up of a clinical measure of general paranoid thoughts (i.e. Fenigstein and Venable's revised Minnesota Multiphasic Personality Inventory subscale of paranoia for the normal population), a self-esteem measure (Rosenberg's Self-esteem Scale, 1965) and it also included a questionnaire devised by the researchers on the subjective experiences of paranoid feelings. This specific questionnaire was elaborated by the author of this chapter and relied on cognitive and behavioural theories for clinical cases such as paranoid delusions (see Chadwick, Birchwood & Trower, 1996).

In its format there was a nosological definition for paranoid feelings and a question asking whether participants had experienced them or not. Those questions were included in the questionnaire because it has been observed in clinical practice that there are certain events that are behind some kind of belief that is inferred from them (Beck, 1979). With time those beliefs form a negative schema with distorted interpretations of the world (e.g. someone is always being abused by a friend, this abuse therefore may lead one to think that all friends are against you). When this happens, individuals that present such patterns of thought will come to the attention of clinical services.

Thus in clinical practice, the role of the therapist is, (in the light for example Ellis ABC model, 1980) to tackle the acting events (A) and then the resulting beliefs that are an interpretation of this situation (B) that in its turn determines the problematic behavioural consequences (C).

Following those questions, the questionnaire also measured the level of preoccupation caused by the beliefs that participants held; their ease of dismissal; the situations that are perceived to cause them; the length of time believing in paranoid explanations and their level of conviction; the frequency of paranoid feelings, and finally the strategies that were used to get rid of them and their efficacy in doing so. Those questions were elaborated to permit assessment of the way individuals tackle their beliefs and how much impact those beliefs had on them, in order to provide a picture of the dynamics of belief formation and strategies used to deal with associated feelings.

The hypotheses elaborated were the following:

(a) Paranoia will appear in a sample of college students.

(b) The nosological definition of “normal” persecution paranoia should concentrate on the presence of feelings of malevolence and intention to harm from others. Furthermore, it is expected that the explanations given by participants who reported feelings of mistreatment from others and their malevolent actions against them would reflect their belief that others didn’t like them and viewed them as different, i.e. as a subject for scrutinising. In this way, people that yield paranoid feelings think that they were victimised in some way, they dwell on other people’s unjust thoughts and actions towards them. Feelings of injustice and, at a more extreme level of conspiracy (i.e. injustice from a group of people and not a particular individual) include harmful events such as failing to achieve one’s goal, because other people prevented you achieving the goal, but also upsetting actions performed by a social group or by an individual. Those include exclusion from the group, thwarting and deprecatory comments towards the individual or even an intention to prevent one’s success.

(c) Participants who report subjective experiences of paranoia with a clear intention of harm from others should also score higher in Fenigstein & Venable’s General Paranoia Scale compared to both participants who do not report feelings of paranoia and those who report paranoia without a clear intention of harm from others (ambiguous group) who should score lower in Fenigstein & Venable’s questionnaire.

Method

Participants

Participants were 116 college students from the Psychology, Economics and Biochemistry departments at the University of Southampton. These students were mainly English (96%). Their age ranged from 18 to 25 years old. There were more females (n = 92) compared to males (n = 24).

Design and Procedure

This study was exploratory and intended to measure the incidence of paranoid feelings in a college student population. Questionnaires were the methodological tools used to provide a more in depth description of paranoia.

Participants were given standardised written instructions and were asked to fill in a battery of questionnaires that was supposed to take more or less fifteen minutes. After doing this, they were debriefed and were thanked for their participation in the study.

The battery of questionnaires included the Rosenberg's Self-Esteem Scale (Rosenberg, 1965), the General Paranoia Scale (GPS) adapted by Fenigstein and Venable (1992) and a new questionnaire devised by the researchers that is a more specific measure of epistemological and phenomenological dimensions to paranoid feelings.

Rosenberg's Self-Esteem Scale (RSES)

This standardised questionnaire is considered to be a good measure for general self-esteem and it is used frequently by researchers in this field. It includes ten general statements such as "I feel I am a person of worth at least in equal plane to others". Participants had to indicate how much they agreed with the statement on a 1 to 5 scale (from 1 – strongly agree to 5 - strongly disagree). The original sample for which the scale

was developed in the 1960s consisted of 5,024 high school juniors and seniors from 10 randomly selected schools in New York State and was scored as a Guttman scale. The scale generally has high reliability: test-retest correlations are typically in the range of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to .88 (see Blascovich and Tomaka, 1993). Studies have demonstrated both a unidimensional and a two-factor (self-confidence and self-deprecation) structure to the scale.

Fenigstein and Venable's General Paranoia Scale (1992)

Fenigstein and Venable (1992) devised this questionnaire by drawing on the MMPI (Minnesota Multiphasic Personality Inventory) scale for paranoia. The authors used this clinical measure to measure paranoid symptomatology in the normal population. To do this they had to delete certain items that were obscure or clearly indicated psychotic ideation. After pilot testing, the final scale was composed of 20 items that had to include the following aspects of paranoia: (a) the belief that other people or external powerful forces are trying to influence one's behaviour and thinking; (b) the belief of a conspiracy, i.e. that people are against you in some way; (c) the belief of being spied on and talked about behind one's back; (d) a general suspicion or mistrust of others; (e) and finally, feelings of resentment.

Participants were asked to respond to each item on a 5-point scale ranging from 1 – not at all applicable to me to 5 – extremely applicable to me.

One of the reasons why this scale was incorporated in this study was because Fenigstein and Venable (1992) reported across the four samples an overall alpha of .84 implying good internal consistency and good validity. Moreover, despite the relatively long interval between testing, Fenigstein and Venable (1992) also reported a test-retest correlation of .70 for their adapted measure of paranoia. It can be concluded therefore that their scale was a reliable measure to be employed in a normal population.

Questionnaire for Paranoid Feelings in the Normal Population (QPFINP, 2000)

1.1. Pilot Phase

This questionnaire was devised by the researchers with the intention of capturing the essence of paranoid feelings in a sample from the normal population. The initial version of the questionnaire didn't present to participants a social vignette that demonstrated feelings of paranoia. Participants were only asked whether they had ever felt the feelings described in the introductory paragraph of the questionnaire. In a pilot study, the lack of a social vignette depicting a situation where it is likely that certain people will feel "paranoid" blurred the answers provided by participants. From the analysis of the answers of 10 participants, researchers reached the conclusion that it was important to have a vignette that would put them on the right track when reporting experiences of paranoia, otherwise they would be reporting feelings of anxiety that, as it was argued before, share a lot of similarities with paranoia.

This being the case, researchers decided to include the vignette showing the situation of a lecturer giving a low mark that is common to all students, but the difference lies in how each student interprets this particular event. After piloting the study again in 5 people, researchers agreed that participants were clearer about what kind of feelings they had to report. Also in the final version of the questionnaire, a question was included about the intentions behind the actions of the other towards the individual to tap the presence of paranoid feelings and separate them from the presence of anxiety per se.

1.2. Final version of the QPFINP (2000)

In the final version of the QPFINP, there were 14 items: some are open – ended questions allowing for more rich and idiosyncratic pieces of information; others are simply yes and no questions and finally, the last ones ask questions which the participants have to answer on a scale ranging from 1 to 5. The design of the questionnaire was the following: first it started by defining paranoid feelings followed by an example of a situation where these feelings can arise. Then it asked, in a closed question format whether participants had the feeling or not. From then on it tried to capture subjective experiences by asking for an

example where participants have felt like this and for a subjective description of a paranoid belief with a clear statement of intention of harm from others and the probable causes behind this belief. Therefore, the questionnaire tackled the idiosyncratic explanations for paranoid feelings, the strength of these explanations and any possible changes to the belief and why they occurred. This is quite important, as no measure for paranoia has yet tackled in a normal population, the coping strategies used by individuals to deal with stressful feelings and associated beliefs. Indeed, ego defence strategies such as rationalisation or repression of thoughts can be vital to prevent further degeneration of a belief into bizarre delusions.

The questionnaire also tackled the behavioural component of paranoia. It intended to measure the behaviours people use to cope with their unwanted and hurting feelings. Usually, it is assumed that individuals are either aggressive, as they feel threatened so they confront the agent or they keep their feelings locked up inside and blame the person(s) that they deem responsible without expressing it outwardly (Fenigstein and Venable, 1992).

Finally, the last questions of the questionnaire dwelt on the level of preoccupation, the level of impact of the feeling on the individual and the presence of associated moods such as sadness. Moreover, other questions also asked whether or not this feeling is recent and whether individuals had expressed their concerns to a third party (usually a friend). Lastly, there was a question that tried to capture in a normal population the observed difference between beliefs in a clinical population of “bad me” versus “poor me” paranoid individuals (Chadwick and Trower, 1996).

Results

1.1. Percentages and main results in the QPFINP (2000)

1.1.1. Results for Question 1 “*have you ever had this kind of feeling yourself?*”

From the total sample of 116 students, 46% (n=53) reported no feelings of paranoid persecution (hereafter labeled as NP- No Paranoia), 35% (n=41) described an episode of paranoia which included a clear statement of intention of harm from others (PG- Paranoia Group), compared to 19% (n=22) who reported an experience which they identified as paranoia but did not include an explicit statement of intention of harm from others (AG – Ambiguous Group). For this reason, those participants were not classified as reporting paranoia, although they understood the episodes they reported as being paranoia.

From these descriptive data it can be argued that some members of a college student sample acknowledge feelings of paranoia and they are reported by a large number of people.

1.1.2. Descriptive results for Question 2 “*if yes, please describe an example*”

On the basis of the participants’ responses to the QPFNIP, one third of this sample reported a clear episode of paranoia with the associated belief of an intention to harm from others (PG). The kinds of situations that are reported by those people are: negative events such as getting lower marks “... than expected, not getting picked on sports teams” (participant number 6), situations where other people exclude the individual from things “friends leave me out...” (participant number 4) and where someone in particular (usually a person of higher rank than the participant) excludes and rejects the person e.g. “my uncle will intentionally try to exclude me from family activities” (participant 111) or when an individual (usually a person of higher rank than the participant) tries to prevent this person’s success e.g. “in an essay my tutor and I don’t get on and I got a lower mark (from him) that I thought was not fair/justified.” (participant 73).

1.1.3. Results for Question 3 “*At the time how strongly did you believe this explanation?*”

A further analysis of the responses provided to the QPFINP on a Likert scale from 1 (definitely false) to 5 (definitely true), demonstrated that on average, participants who reported feelings of paranoia and were evaluated by researchers as presenting paranoia and not some other phenomenon, believed that others were harming them because they felt they were rejected by those people (question 3, M= 3.585).

1.1.4. Results for Question 4 “*At this present moment has there been a change in your beliefs?*”

When asked if there had been a change in their beliefs at the present moment (question 4), 51% (21) of the 41 participants in the PG said “no” whereas 49% (20) said “yes”.

1.1.4a. Results for Question 4a “*If yes, please specify?*”

This open-ended question asked them to specify how their beliefs have changed (question 4a). This allowed participants to give more detailed information about their beliefs and why they might have changed. It was observed that 37% (15) of the 41 participants in the PG did not show data in this question and 12 % (5) presented no change in their beliefs; reporting the same belief as before (see table 1). On the other hand, another 37% (15) of the 41 participants provided an explanation for the change of belief that was categorised as a *cognitive shift* in thought (see table 1), that is, the participant started to believe in a totally different explanation for the event e.g. “Began to think that maybe I wasn’t as good as I thought” (participant 6 trying to explain why she thought she was not succeeding as she expected and why she was being excluded from activities). The last 15 % (6) of the 41 participants in the PG wrote down an explanation to why their belief changed that was classified as *rationalisation* (see table 1). Those participants seemed to analyse their previous belief and change it into a more logical and “realistic” explanation, e.g. “It was more likely my work deserved a lower mark” (participant 7 trying to explain why she thought that she was not getting the marks she expected and because she wasn’t active in classes she firstly thought that was because she was being rejected by the tutor

but then she “rationalised” that belief into a more “realistic” explanation related to her lack of involvement in academic discussions).

Table 1. Percentages for the categorised answers in Question 4a

Question	Categories				Total
	Cognitive Shift	Rationalisation	Repression	No change	
4a)	37%	15%	0%	12%	41

1.1.5. Results for Question 5 “*In what circumstances do you get similar feelings?*”

The next question in the QPFINP was also an open-ended question and it tried to capture other types of situations that participants thought were likely to cause them to think in a certain way (question 5). Of the 41 participants in the PG, 2% (1) presented no data and another 2% (1) didn’t know of any other situations likely to induce paranoid beliefs whereas 10% (4) said that there was no other event, implying that there was only one type of event related to their paranoia (see table 2). Contrary to those participants, 27% (11) of the 41 participants reported events that were categorised under *evaluation* (see table 2). Those events were usually situations where the individual would be scrutinised and evaluated by others such as in public presentations, e.g. “ when I perform presentations and I am criticised I know it is valid but feel overshadowed” (participant 4). Furthermore, 20 % (8) of those 41 participants classified as reporting paranoia (PG) wrote down responses that were classified under the category of *injustice* (see table 2). This category includes events that show that the participant feels victimised and treated by others in an unjust way by being for example rejected by others without giving them any reason to do so e.g. “ being rejected by friends, when people turn against me” (participant 7).

On the other hand, only 5% (2) of those 41 participants reported events that were classified under the category of *lack of control* (see table 2). This category represents the

kind of situations where the individual feels a sense of catastrophe because he/she cannot control the course of events e.g. “ when things go wrong or not as planned” (participant 15). Also only 2% (1) of the 41 participants in the PG reported situations that were classified under the category of *resentment* (see table 2). This particular category depicts events where the participant feels bitter about other people’s behaviour towards him and or her e.g. “they were jealous of me so they treated me bad” (participant 68). Another 2 % (1) of the 41 participants reported another kind of situation behind their beliefs that were classified under the category of *unexpected events* (see table 2). This category represented events that are negative and not foreseen by the participant, e.g. “when I get marked down unexpectedly on coursework” (participant 108). There were 8 people (20%) of the 41 participants in the PG that provided answers to question five that were classified under the category of *exclusion* (see table 2). The type of answers provided thus included events where the participants are rejected by others and excluded from group activities e.g. “ when I am with people I really don’t know... they won’t accept me. They hate me and might purposefully hurt me” (participant 111). The last 7% (3) of the 41 participants wrote down answers that were classified under the category of *stress* (see table 2). This category includes situations that are usually negative and tiring for the person, e.g. “ when I am very tired or stressed I can easily start to believe that everything is going against me for a reason and that it’s some sort of conspiracy” (participant 13).

Table 2. Percentages for the categorised answers in Question 5

Question	Categories									Total
	Doesn't know	Injustice	Evaluation	Stress	Lack of control	Resentment	Unexpected	Exclusion	None	
5	2%	20%	27%	7%	5%	2%	2%	22%	10%	41

1.1.6. Results for Question 6 “*Did you act on this feeling?*”

After showing questions to participants about their beliefs, the QPFINP included three questions about the behavioural component of paranoia, i.e. whether people that felt

paranoid act on their feeling and if so what they did about it. Thus, question 6 simply asked whether participants have acted in their feelings. Of the 41 participants in the PG 76% (31) said “no” whereas 24 % (10) said “yes”.

1.1.7. Results for Question 7 “*What did you want to do?*”

The next question, tried to capture the intention to act (question 7) by asking participants what they wanted to do.

The categories devised for this question were based on the clinical literature. For example Freud (1946) reported several ego defences that would prevent emotion and unwanted feelings (sustained by the id) to be consciously acknowledged and impair healthy psychological functioning. Examples of those were *catharsis* (expelling feelings to the outside, such as crying and shouting), *avoidance* (avoid the situation that made the feelings come about), *confrontation* (that means that one will confront the person or persons that one thinks were malevolent towards you) and *rationalisation* (this category is concerned with the idea that there is an attempt by the person to provide a “rational” and logical explanation for their feelings that will be the most feasible one).

Therefore in question 7, 17 % (7) of the 41 participants in the PG reported no data whereas 10 % (4) reported that they wanted to do nothing (see table 3). On the other hand, 5 % (2) reported actions that were classified under the category labelled as *catharsis* (see table 3). An example of catharsis was this statement provided by participant 13: “I wanted to scream and shout at the top of my lungs.” Another 5 % (2) of the 41 participants intended to act but in a non-confrontational, reasonable way (see category *rationalisation* on table 3). An example of this type of action was the one reported by participant 25: “get my point over clearly and convincingly.” Also, 20% (8) of the 41 participants reported intentions to avoid confrontation with people that did harm to them (see table 3 for responses categorised under the category of *avoidance*). Participant 40 that said she wanted to “leave” provided an example of avoiding a situation. The other 44% (18) of the 41 participants were reporting an intention to confront the threatening agent (s) (see the category labelled as *confrontation* present in

table 3). Participant 17 reported that he/she “wanted to talk to them to find out why they were doing it” which displayed an example of a confrontation.

Table 3. Percentages for the categorised answers in Question 7

Question	Categories					Total
	Nothing	Confrontation	Rationalisation	Avoidance	Catharsis	
7	10%	44%	5%	20%	5%	41

1.1.8. Results for Question 8 “*What did you actually do about it?*”

The next question in the QPFINP (question 8) was an open-ended question whose responses were categorised in the same way as in question 7. This was the third question about the behavioural component in paranoia and it asked what did participants actually do about it (despite their intentions). Of the 41 participants in the PG, 59% (24) showed no data and 20% (8) did nothing. However while 2% (1) reported a response that was classified under the *rationalisation* category, 5% (2) reported answers that were classified under the category of *catharsis*, 7% (3) reported answers that were classified under the category of *avoidance* and lastly another 7% (3) reported answers that were classified under the category of *confrontation* (see table 4).

Table 4. Percentages for the categorised answers in Question 8

Question	Categories					Total
	Nothing	Confrontation	Rationalisation	Avoidance	Catharsis	
8	20%	8%	2%	8%	5%	41

1.1.9. Results for Question 9 *“How much did this feeling preoccupy you at the time?”*

Question 9 asked how much the feeling preoccupied the person, on average using a Likert scale of 1 (not at all) to 5 (very much) participants reported being a little bit preoccupied about this feeling of paranoia (question 9, $M=3.26$).

1.1.10. Results for Question 10 *“In the last month, have you had this feeling?”*

Question 10 dwelt on the duration of the feeling by asking if the person had this kind of feeling in the last month. Of the 41 participants in the PG, 46% (19) said that they haven't had this feeling in the last month, whereas 54% (22) said that they have had this feeling recently.

1.1.11. Results for Question 11 *“How much impact had this feeling on you?”*

On question 11, the 41 participants reported that the impact that this feeling had on them in a Likert scale from 1 (none) to 5 (severe) was of $M = 2.902$ that is, the impact was mild.

1.1.12. Results for Question 12 *“Was this feeling preceded by negative moods such as sadness or worry?”*

When asked if the feeling of paranoia was preceded by negative moods such as sadness (question 12) of the 41 participants in the PG, 2% (1) did not show data whereas 73% (30) said “yes” and the rest 24% (10) said “no”.

1.1.13. Results for Question 13 *“How much did you believe that you deserved others' mistreatment?”*

Furthermore when asked how much they thought that they deserved the mistreatment of the other or a group of people, on average (question 13) participants reported on a Likert scale from 1 (totally undeserved) to 5 (totally deserved) that they thought was somewhat undeserved implying that they were seeing themselves as a victim of injustice ($M= 2.00$).

1.1.14. Results for Question 14 “*Did you tell anyone what happened?*”

The last question on the QPFINP tackled the issue of confiding to someone his and or her feelings. Of the 41 participants in the PG 2% (1) did not show data but 41% (17) said that they did not tell someone what happened and how they felt whereas 56% (23) said that they did tell someone about their feelings.

1.2. *Categorisation of responses in the QPFINP (2000)*

Questions 2, 2 a) and 2 b) from the QPFINP allowed participants to provide subjective explanations and experiences of paranoia.

Those questions were coded according to the tables below (see tables 2 and 3). There were three categories: *unexpected events*, *social attachment* and *rejection* and *blocked goals* and each of them was provided with a definition to which the answer given by the participants had to correspond to. The category labelled as *social attachment* and *rejection* was subdivided into two different categories: one was labelled as *rej1* or rejection by one person and the other as *rej>1* or rejection by more than one person. In the same way, the category labelled as *blocked goals* was also subdivided into *BG1* or thwarting by one person and *BG>1* or thwarting by more than one person.

Researchers devised those categories in order to simplify the categorisation of responses. The later categories were overlapping conceptually so they could be put together under one big category. For example, the category labelled as *social attachment* and *rejection* encapsulated the initial categories of *injustice*, *exclusion* and *disliked by others*. This category was elaborated by drawing into literature on social psychology and attachment theories.

1.2.1. Results for Question 2 “*If yes, please describe an example*”

In question 2 participants were asked to describe an example where they felt paranoia. Of the 41 participants in the PG, 37% (15) provided an example that was classified under the category of *unexpected events* (see table 5). One example of an

answer that was classified under this category was provided by participant number 6 who wrote: “getting a lower mark than expected”. Furthermore, of the 41 participants in the PG 24% (10) provided answers that were classified under the category of *rejection by one person* (see table 5). For example participant 45 reported an example where she felt paranoia when she had “thoughts that social groups were trying to isolate and upset me (her)”. On the other hand, of the 41 participants in the PG, 12% (5) described examples that were classified under the category of *rejection by more than one person* (see table 5). For example, the statement provided by participant number 86 reflected feelings of rejection: “when I was younger at school and another girl was talking about me behind my back to people who I thought were my friends.” Finally of those 41 participants in the PG, 27% (11) described examples that were classified under the category of *blocked goals by one person* (see table 5). As an example of an answer that was classified under this category, participant 74 reported: “ not getting a part I auditioned for a play because he gave it to someone else.”

Table 5. Percentages for Question 2

Question	Categories					Total
	Unexpected events	Rej1	Rej>1	BG1	BG >1	
2	37%	12%	24%	27%	0%	41

1.2.2. Results for Question 2a “*In what way did they, or s/he intend to harm or upset you?*”

Question 2 a) was extremely important for this study because it tackled the belief present in paranoia that others intend to harm you. This question explicitly asked in what way participants thought other people were intending to harm them. Of the 41 participants *who were selected and classified as reporting paranoia on the basis of their answers to this question and the presence in their statements of malevolence from others towards them*, none reported that the other people’s intention to harm was due to the situation (i.e. no one provided an answer to be classified under the category of Unexpected events). Moreover, 5% (2) did not know the answer to this question.

However, of those 41 participants classified as reporting paranoia, 34% (14) provided answers that were classified under the category of *rejection by more than one person* (see table 6). As an example of a response that was categorised under this category participant number 4 reported that friends “single me out as different”. Also, 24% (10) of the 41 participants in the PG provided responses that were classified under the category of *rejection by one person* (see table 6). For example, participant number 10 reported a clear feeling of *rejection by one person* in a position of authority. The way this participant thought this person was harming her was “because she didn’t like me, therefore by giving a low grade I believed she wanted to hurt my feelings.” Lastly of the 41 people in the PG 37% (15) provided responses that were classified under the category of *blocked goals by one person* (see table 6). As an example of a statement that transmitted the idea that someone is hampering one’s success participant 22 said “I thought that he was out to try and make me lose the match by calling shots that were in, out.” Moreover, 5% (2) of the 41 people in the PG described examples that were classified under the category of *blocked goals by more than one person*. For example participant number 5 provided a statement where groups of people were thwarting her and hampering her success: “conspire in frustrating me because I had to PROVE my idea was right”.

Table 6. Percentages for Question 2a

Question	Categories					Total
	Unexpected events	Rej1	Rej>1	BG1	BG >1	
2a)	0%	24%	34%	37%	5%	41

1.2.3. Results for Question 2b “*At the time why did you think this event happened?*”

The last question of this block that tackled the beliefs about paranoia and the events that are likely to be behind those beliefs simply asked participants for an explanation to why they thought this event happened (question 2b). Of those 41 participants in the PG, 2% (1) provided an answer that could be classified under the category of *unexpected events* (see table 7). Also, of those 41 individuals in the PG, 5% (2) did not know why the event happened. On the other hand 34% (14) described

explanations that were classified under the category of *rejection by one person* (see table 7). For example participant 10 elaborated an explanation that brooded on the fact that her teacher rejected her and therefore she didn't get on with her, as she puts it "because my teacher and I didn't get on." On the other category labelled as *rejection by more than one person*, there were 27% (11) of those 41 people that provided answers that fitted into this category. Participant 15 provided an answer that clearly displayed the feeling of rejection from others towards him, and he explains this in this way: "because they didn't like me and so victimised me."

Concerning the category labelled as *blocked goals by one person*, 27% (11) of those 41 participants in the PG provided answers that fitted into this category. As an example of an answer that fitted into this category, participant 19 provided an explanation that reflected the feeling of being thwarted by the marker when this one gave a better mark to the participant's mate. This participant explains this by stating: "... my marker had a bad day and my mate had just got a pay rise."

Finally in terms of the category labelled as *blocked goals by more than one person*, only 5% (2) of those 41 people that were classified as reporting paranoia have provided answers that fitted into this category. For example participant 4 thought that friends would single her out because they were jealous of her and tried to prevent her accomplishing new friends. As she puts it: "jealous of bonds between others."

Table 7. Percentages for Question 2b

Question	Categories					Total
	Unexpected events	Rej1	Rej>1	BG1	BG >1	
2b)	2%	34%	27%	27%	5%	41

1.3. Interrater reliability for the categories in the QPFINP (2000)

As a way to test for the reliability of the categories designed by the researcher, all the responses provided by participants to the open questions were coded by another person using the code book that was devised by the researcher when analysing the qualitative data and the responses provided by this person were matched to the ones provided by the researcher.

Therefore for questions 2, 2a) and 2b) the kappa was of $\alpha = .96$, implying a good agreement between the researcher and the other person when coding participants' responses. Also for question 4a) and 5 agreement was good between them as $\alpha = .95$. Lastly, for questions 7 and 8 the agreement between the researcher and the other person when coding participants' responses was quite good: $\alpha = .97$. All in all, the categories that were devised reached reliability and provided a good description of the data as two different people almost always agree on to which category the response provided by the participant belongs to.

Table 8. Reliability scores for the open-ended items in the QPFINP

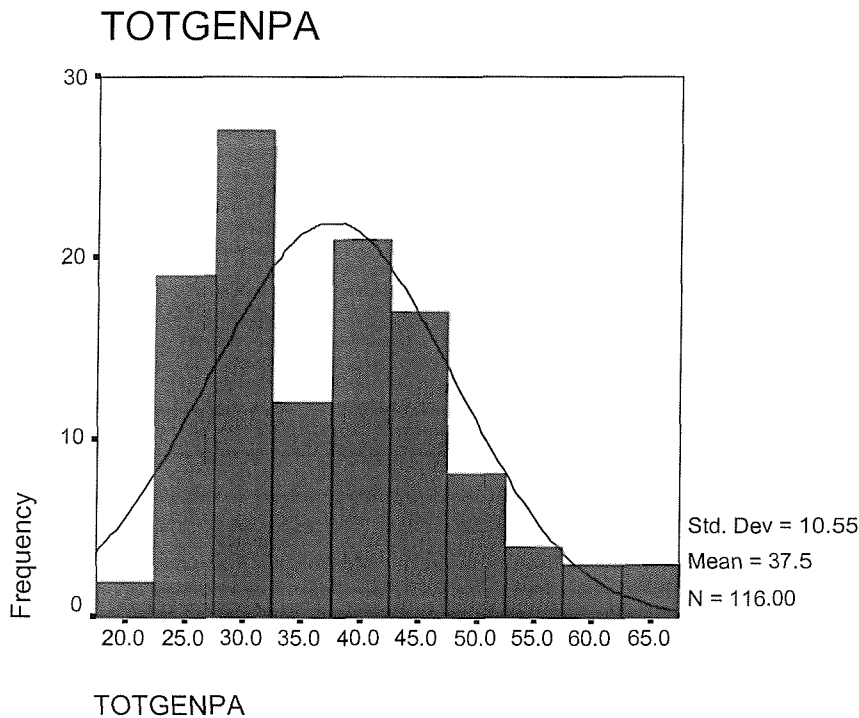
	Items 2, 2a, 2b	Items 4a and 5	Items 7 and 8
Cronbach's alpha	.96	.95	.97

1.4. Comparisons between the QPFINP, the Fenigstein & Vanable's General Paranoia Scale (1992) and Rosenberg's (1965) Self-Esteem Scale.

Participant's scores in Fenigstein & Vanable's (1992) General Paranoia Scale were normally distributed as it can be observed in figure 1. The normal curve demonstrates descriptively that the population is normally distributed. Similar to what was observed in a study by Fenigstein and Vanable (1992), the mean total score on the General Paranoia Scale ranging from 20-100 (as adopted by the authors mentioned above) was ($M = 37.45$, $SD = 10.54$, $n = 116$). This suggested that on average participants reported a paranoid scale item as being slightly applicable to them (see table 9). Furthermore the mean score for females on Fenigstein & Vanable's GPS was of ($M =$

37.01, SD = 10.07, n= 92) and for males of (M = 39.16, SD = 12.29, n =24). A chi square statistic demonstrated that males were significantly scoring higher ($\chi^2 = 39.86$, $p < 0.001$) than females on Fenigstein & Venable's GPS.

Fig 1. Distribution of scores in Fenigstein & Venable's General Paranoia Scale (20-100)



Concerning reliability issues, the alpha value of this scale for $n = 116$ was of $\alpha = .8908$, implying a substantial degree of consistency.

Regarding self-esteem, the mean response was ($M = 28.43$, $SD = 4.77$). This implied that on average participants tended to agree with the statements on Rosenberg's Self-Esteem Scale (see table 9). In other words, on average self-esteem is medium to high. The alpha value for this scale was of $\alpha = .6084$, which suggested good reliability.

Table 9. Means and Standard Deviations for the Fenigstein & Venable's General Paranoia Scale and the Rosenberg's Self-Esteem Scale

Questionnaires	Mean	SD
GPS (1992)	37.45	10.54
RSES (1965)	28.43	4.77

1.4.1. *Differences between the PG group versus the NP group versus the AG group in Fenigstein & Venable's GPS scores*

In Fenigstein & Venable's GPS the Mean for the PG (n = 41) was (M = 42.51) with a variance of (SD = 9.7). On the other hand, the NP showed a mean of (M = 34.20, n= 53) and a (SD = 9.9). Furthermore, the AG showed a mean of (M= 35.86, n= 22) with a SD = 10.18.

Table 10. Descriptive statistics for the Groups in the QPFINP

	NP		PG		AG	
	Mean	SD	Mean	SD	Mean	SD
Fenigstein & Venable's GPS	34.20	(9.9)	42.51	(9.7)	35.86	(10.1)

A one-way ANOVA was performed to measure the differences in the scores on Fenigstein & Venable's (1992) GPS between individuals that report a paranoid feeling (PG) versus individuals that do not report paranoid feelings (NP) versus the participants who report feelings of paranoia but were classified as reporting other phenomenon rather than paranoia (AG). Results supported hypothesis c) that argued that the participants that reported paranoid feelings in the QPFINP were also reporting the higher scores in Fenigstein & Venable's GPS differing from the participants that didn't report feelings of paranoia and scored low in Fenigstein & Venable's GPS. This can be observed in this

statistic $F = 8.44$, $d.f. = (2, 115)$, $p < 0.01$ that implied a very significant difference between the groups in their scores in Fenigstein & Vanable's GPS.

Table 11. Differences in scores in the GPS for the groups in the QPFINP

Questionnaires	F	Sig.
GPS x QPFINP	8.44*	0.00*

* $p < 0.01$

To further examine this result planned contrasts¹ were also done to examine where the differences lied. An independent samples t test showed that the PG group significantly differs from the NP group in their GPS scores [$t(114) = 4.04$, $p < 0.01$].

Thus, the individuals that reported clear idiosyncratic experiences of paranoia also reported the highest scores in paranoid symptomatology (as measured by the GPS) in contrast to the individuals that didn't report paranoia in the QPFINP who at the same time reported the lowest scores in Fenigstein & Vanable's GPS. This result demonstrated that the QPFINP had concurrent validity with Fenigstein & Vanable's GPS. Both were measuring the same phenomenon but in different ways.

Another planned contrast showed that the PG significantly differed from the AG in their scores on Fenigstein & Vanable's General Paranoia [$t(114) = 2.54$, $p < 0.05$].

This being the case, individuals that reported a paranoid feeling (PG) score considerably higher in Fenigstein & Vanable's General Paranoia Scale when compared to individuals who said "no" to a paranoid feeling (NP) and the individuals that are classified as demonstrating other feelings rather than paranoia (AG).

When performing a final planned contrast between groups, both individuals that said no to a paranoid feeling (NP) and the individuals that said yes to a paranoid experience but are classified as not reporting paranoia (AG) did not significantly differ in their scores on Fenigstein & Vanable's General Paranoia Scale [$t(114) = 0.65$, n.s.]. This suggested that those groups are both scoring low in trait-like general paranoia as measured by Fenigstein & Vanable's General Paranoia Scale.

Table 12. Planned contrasts between the PG, NP and AG on their scores in the GPS

Groups	t (114)	p
PG versus NP	4.04	<0.01
PG versus AG	2.54	<0.05
NP versus AG	0.65	n.s.

1.5. *“Poor me” versus “Bad me” thinking styles in the QPFINP*

Regarding the distinction that is observed in a clinical population between “bad me” and “poor me” styles of paranoia (see Chadwick & Trower, 1996) we did cut-offs in the scores of self-esteem, Fenigstein & Venable’s General Paranoia Scale and on the item on QPFINP that assessed the beliefs the PG group concerning the deservedness of the persecution from others. The distribution of scores for item 43 that measured those beliefs was normal (see fig.3). The kurtosis was of .064 indicating that the distribution was not skewed towards one of the ends.

It was observed that 20 people of the total sample reported the “poor me” style of paranoia. That is they strongly believed that they did not deserve the mistreatment of others and that they were victims of the malevolence of others towards them. From those twenty people, four showed low self-esteem only and another four presented high scores on Fenigstein & Venable’s GPS (1992). Also from those 20 people that reported “poor me” paranoia, two displayed low self-esteem coupled with high paranoia scores on Fenigstein & Venable’s GPS (1992) versus one person that showed high self-esteem coupled with low paranoia scores on Fenigstein & Venable’s GPS (1992). Only one person from those twenty people reporting “poor me” style of paranoia displayed also high self-esteem per se.

On the contrary, from the total sample of 116, only five people reported the “bad me” style of paranoia. That is, those people strongly believed that they deserved the mistreatment of others, usually because they see themselves under a negative light

¹ Post hoc analyses (e.g. a Tukey HSD test) were done to observe which groups differed significantly from each other (see table 13, appendix IV).

therefore, they see themselves as bad people so they deserve to be punished (Chadwick & Trower, 1996).

From those five people presenting a “bad me” paranoia style, only one reported low self-esteem while another person reported only a high score in paranoia on Fenigstein & Vanable’s GPS associated to this style. The other three displayed only a “bad me” paranoia style.

When analysing those data it cannot be argued that there was “bad me” versus a “poor me” style of paranoia in a college student population. They are represented in this study with very low numbers and the differences between the two are not clear in order to support the argument that those different styles of paranoia can be observed in this sample. Probably, at this stage feelings of paranoia are still very blurred and can not be defined into those strictly different thinking styles that are observed in the clinical populations.

Discussion

Do paranoid feelings exist in a sample of normal individuals?

The answer to this main research question argued that some people in a college student sample displayed paranoid feelings (in this particular sample, 35% of the 116 participants reported paranoia and those also tend to report the highest scores on Fenigstein & Vanable’s General Scale for Paranoia – see the results section). Therefore paranoia as a psychological experience may be far more common than usually thought. Individual accounts for this experience also provided descriptive information about paranoia and the presence of associated feelings of being rejected by others that thwart and prevent one’s success by harming the individual in a particular way.

If we take look at the answers provided by two participants that were classified as reporting feelings of paranoia in the QPFINP (i.e. the PG) to questions 5 and 2a), there was the clear presence of feelings of resentment and rejection in their “paranoid”

beliefs: “ I thought *he was out to try and make me lose the match* by calling shots that were in, out (participant 22) and “ When I am uncertain of the people around me in a group, *and am not being talked to (ignored)* occasionally I do get very self-conscious, *thinking that they have something against me* because of my height/weight/skin colour/sex..” Therefore, those two participants from a college student sample, displayed feelings of either being unable to reach their goals because others intentionally try to prevent their success (i.e. BG1) or of being rejected and negatively evaluated by others.

Those observations regarding feelings of rejection in people that report an experience of paranoia are present in the literature that argues that a positive social context is essential for psychological and physiological health. People who feel socially alienated and rejected by others are susceptible to a host of behavioural, emotional and physical problems suggesting that human beings may possess a fundamental need to belong to a social group (Baumeister & Leary, 1995). This being the case, people who demonstrate feelings of paranoia should display associated feelings of rejection from a social group or from an important individual that may be linked to their display of paranoid feelings of mistrust, resentment and bitterness. Indeed, despite people’s best effort to be accepted social rejection is a pervasive feature of social life.

As a consequence, many individuals would feel intentionally rejected by others and excluded from social interactions because they feel that they have a particular characteristic that makes them different from others (e.g. in terms of ethnicity, weight, height and so on, Steele & Aronson, 1995).

On the other hand, concerning the category labelled as *unexpected events* (includes reports of uncontrollable, negative events), literature on helplessness (see Abramson, Seligman & Teasdale, 1978) reports the important link between locus of control over negative events and its association with negative emotional feelings such as anxiety and depression. This literature shows that when humans are faced with negative or stressful situations (e.g. doing an exam) and they feel they cannot control the outcome of the situation, they are likely to feel depressed and anxious (Peterson & Seligman, 1978). The lack of control over events could therefore be related to feelings of paranoia, i.e. a belief that everything is going against oneself.

Regarding *blocked goals*, at least 37% of the 41 participants in the PG when asked about the intention to harm from others, have reported feelings of being thwarted by a significant other. This category was devised so that it could account for the feelings of resentment and subordination to the powerful other (see Allan & Gilbert, 1997) in order to avoid conflict. It is well known that humans are socialised into belonging to a class which bears a social status and a set of duties, that are determined by the social hierarchy that in its turn, is implemented by the shared values of a culture (Kramer, 1998). People are always trying to look good in the social light and show that they can succeed under the light of the values of a society that are important to have and display to others. When placed in a social hierarchy they have to fight for acceptance. However, when they cannot achieve their goals that are regulated by societal norms, and are submitted into a subordinate position, they may feel angry and as a probable consequence they also feel that someone is intending to prevent their success. This is a sensible argument to make, as in Western societies under a system that praises individual success, whenever personal success cannot be achieved the individual would feel bitter.

Furthermore similar to what was observed by Fenigstein & Venable, people that report paranoia did not act on their feelings (76% of the 41 participants said that they did not act on the feeling compared to only 24% that acted). Instead, those people keep their feelings locked up inside, ruminate over them and dwell on feelings of resentment and blame others for their feelings without expressing them outwardly. However, when asked what they intended to do a lot of people, 44% of the total 41, intended to confront the threatening agent compared to only 20% that wanted to avoid confrontation. Those results implied that although intending to confront the agent(s) that are doing harm, most people did not actually do it.

The QPINF explored the main characteristics of an experience of paranoia. However, those descriptive results do not allow formulating the criteria for the aetiology of paranoia. Instead, they provide a “flavour” to what happens in certain situations and how individuals perceive the outcomes of those events. The main and most important

feature of the QPFINP is that it could simply differentiate between feelings that people recognise as being paranoia and those that are something else.

There are a few criticisms for this study. First of all, the sample size may have been too small to be able to provide results that support the argument that paranoia exists in a normal population, and this sample also has a large number of females that is not representative of the population. It may well be also that this sample was not normally distributed and contains only one end of the distribution (the abnormal end). However from the graph on the distribution of GPS scores, it can be observed that the scores of the participants are normally distributed and this population does not tend to be placed in the higher end (see Fig. 1).

Another criticism that can be applied to this study is for example the lack of a measure of emotion. This means that this study failed to capture certain aspects concerning psychological episodes of paranoia.

Moreover, this study also did not have a measure of schizotypy. Thus, it can not be argued that the individuals that are classified in the QPFINP as reporting paranoia present a trait “paranoid” personality or a tendency to paranoia. This would be an interesting issue to investigate. Indeed, people that clearly reported paranoia (PG) may present either a trait aspect of it or even a state (or situation inducing) type of paranoia.

The measure that was devised by the researchers for subjective experiences of paranoia (the QPFINP) also needs more work and refinements. On one hand, the QPFINP failed to provide a clear defining aetiology for paranoia and for the phenomenon reported by the group that is ambiguous. Both groups report paranoia but apart from the intention to harm what else differ between them? Also are those 19% of the total sample that reported paranoia without a clear statement of intention to harm, really reporting paranoia or not? Can they be considered to have psychological episodes of paranoia? In this study it was difficult to observe that this was the case. Those people were just classified as not displaying paranoia because the QPFINP wasn't able to tackle the type of phenomenon that those people may have been reporting.

However, considering that the main goal in this study was to find a group that presented paranoia in the QPFINP, this measure was actually quite effective in differentiating between people that report clearly paranoia (PG) versus the ones that do not report paranoia (NP) versus the ambiguous group (AG). Indeed, the QPFINP showed concurrent validity with Fenigstein & Venable's GPS and this meant that both measures were measuring paranoia in a student sample. On one side the QPFINP was looking merely for participant's experiences of paranoia while Fenigstein & Venable's GPS was meant to measure the paranoid trait in this sample. Moreover and according to recent discussion in this field, (see Freeman & Garety, 2000) the intentionality to harm was an important aspect of paranoia and a reliable variable to distinguish between groups. While coding responses for the sample, researchers agreed highly between them, to which people would fall in each group and this agreement is due to the presence of a question that tapped clearly into paranoid experiences. It can be argued in a reliable way, that it wasn't paranoia that was reported when the belief about the malevolence of others was not existent. On the other hand, the format of the QPFINP might have not been ideal to tap into trait paranoia. Thus the QPFINP might have only allowed for a descriptive observation on paranoid experiences.

Although the open-ended questions allow for more of an in-depth description of subjective experiences, those questions are extremely difficult to interpret and when interpreted there may be some biases from the researchers that in their turn may lead to erroneous conclusions. That is, the researchers were specifically looking for a psychological experience of paranoia and they may have misinterpreted certain information that may have been part of this experience but was presented in a way that was not clear that it was. For example, when individuals display thoughts of being talked negatively behind the back without a clear statement that those people that were talking behind their back were intending to harm, the researchers classify those experiences as something else but not paranoia (probably social anxiety). However, as paranoia and social anxiety share a lot of similarities between them it may be erroneous to assume that because there isn't a clear statement of an intention to harm, that these individuals that thought other people were talking negatively about them behind their back, are not

feeling paranoid. This is one of the problems of self-report measures. Participants may not report exactly what they feel, because of social desirability issues, so their responses are blurred and any conclusions taken from them may be wrong.

In the end, paranoia is a phenomenon that lacks an appropriate definition and a description defining its characteristics. The diagnostic manuals used in clinical practice barely provide a clear definition for this phenomenon (see Freeman & Garety, 2000). They fail to point out the most important characteristic of persecutory paranoia that is the belief of malevolence or the intention to harm from others towards oneself. This feeling was present in this sample, as in the QPFINP participants had to provide an explanation to why they thought other people intentionally wanted to harm them. As it was observed, some participants did not report intention to harm from others so they were discarded as having reported paranoia, but the ones that did report this malevolence from others provided an explanation that clarified another important aspect of paranoia. According to those participants, others intentionally harmed them by preventing their own success and in some way, by being malicious and in some cases, extremely competitive. Those feelings seem only natural, as it was pointed out by Kramer, while living in an hierarchical society where the individual has to strive for status it is probable that when someone is prevented to achieve one's goal by others, he or she will feel paranoid about this person (in many cases someone in authority and above rank to the person, see Allan & Gilbert, 1997, or by a group). Furthermore, if the person does not achieve the goal he or she may feel rejected by the group or the authority as he or she feels that he or she failed in obtaining their consideration, their respect, praise and social effectiveness, and personal attractiveness, acceptance and talent.

Under the light of an evolutionary argument it is reasonable to argue (Gilbert, 1998*ab*) that paranoia has a function and that psychological experiences of paranoia are very common. As humans have evolved into social beings that have to be aware of abuse and cheating, thinking that the world is not safe seems at some times, to be quite reasonable. The lack of trust that characterises paranoia is an evolved aspect of the species that had to detect cheaters to survive. The permanent fight for a place in society and acceptance from

the group can be related therefore to paranoid cognitions following criticism, abuse and rejection.

Further research on this topic should try to examine the aetiology of paranoia and provide a clear definition to what paranoia means. Without a proper definition for this phenomenon the studies that are done can fall into methodological flaws and erroneous conclusions. More research with larger sample sizes should explore the characteristics of persecutory paranoia both in a normal and in a clinical population. If the argument for a continuum is taken into account then it would be likely that this phenomenon is present at the normal end.

A number of clinical psychologists (e.g. Claridge, 1985; Strauss, 1969) agreed that psychotic symptoms lie in a continuum with normal experience and are the severe expression of traits in the general population. Individuals range from the conventionally “normal” through various shades of eccentricity to those who experience severely distressing psychotic experiences. Thus, the distinction between signs of mental illness (i.e. symptoms) and the expression of human individuality (i.e. human traits) becomes blurred. The presence of psychotic-like traits in the normal population has been termed of “schizotypy”. A continuum view is easily understood if one imagines other common experiences such as anxiety. Individuals differ on how anxious they are in general. This is an enduring characteristic and is likely to be the ending result of a combination of genetic and environmental factors. Only a minority of individuals will ever experience extremes of anxiety that would be recognised in the diagnostic textbooks as justifying a diagnosis of an “anxiety disorder”. In the same way, the state of extreme suspiciousness known as “paranoid delusions” is on a continuum with feelings of suspiciousness that people feel from time to time (as it was observed in this study). Substantial evidence has been mounting in favour that psychotic experiences are on a continuum with normality. The so-called “schizotypal traits have been described to have similarities with thought processes observed in psychotic experiences. Those traits were measured in the normal population through the use of questionnaires (see Bentall, Claridge & Slade, 1989). Results from those questionnaires showed that for example individuals who score high in such scales for schizotypal traits resemble individuals with psychotic experiences on a

number of psychological measures such as measures of attention and reasoning (Claridge, 1994).

This being the case, a multidimensional approach to the study of paranoia will be able to study the varied aspects influencing the experience of paranoia and be more useful to the understanding of this phenomenon (Van Os, Gilvarry, Bale, Van Horn, Tattan, White & Murray, 1999). This study thus tried to provide an extremely diversified view into paranoia.

Although lacking a measure for schizotypy, this study had a measure for trait-like paranoia that implied that those feelings of suspiciousness and malevolence of others towards you are “normal”. A measure for schizotypy although useful in examining psychosis proneness was not ideal to test the main hypothesis for this study. We were not measuring psychotic symptoms (e.g. hearing voices) in a normal population but normal psychological experiences (e.g. feeling resented, persecuted and suspicious about others that are all part of paranoia).

Finally, it is important to study paranoia in other ways rather than by the means provided by the symptom approach (see Garety & Freeman, 1999). Most research done within the symptom approach paradigm failed to provide an appropriate account for paranoid delusions. Furthermore, most studies present heterogeneous groups, as by following a symptom approach when recruiting their participants those studies test people with different mental disorders that can present in their diagnosis paranoia as a symptom. As a result of not having a clear-cut definition, different people and probably people that do not display paranoia are included in the study groups.

When faced with such problems, it is important that more exploratory studies are done to study the phenomenon first in order to avoid methodological flaws when recruiting participants for the study and also to enrich our knowledge about persecutory paranoia. Moreover those studies would not only enlighten us as so much as helping to get rid of the stigma that is attached by society to paranoid Schizophrenics. It is known that people that suffer from Paranoid Schizophrenia are still seen as “mad” and irrational (Link, 1982). They suffer from a mental disorder that was brought by itself under the influence of many factors. However, if paranoia is seen as belonging to the “normal”

responses to the environment that may become maladaptive with time and the development of delusions, then all the negativity that is attached to the term “psychotic” and “paranoid” can be ameliorated.

Chapter 4

Negative interpretation bias and attentional vigilance-avoidance in paranoia

Abstract

Objectives: This study tried to investigate attentional and interpretative biases in paranoia using a visual-probe and a homophone task with a sample from a normal population.

Background: Research in paranoia has measured attentional bias in clinical populations (Bentall & Kaney, 1989). This study focused instead on the theories for attentional and interpretative biases in anxiety (see Bradley et al., 1998) and tried to apply those to the study of paranoia in a normal population.

Method: First of all this study measured the time course of attentional biases for emotional facial expressions in high and low paranoia individuals. Threat, happy and neutral face stimuli were presented at two exposure durations, 500 and 1250 msec in a forced choice reaction time (RT) version of the dot-probe task. Secondly, this study also investigated interpretative biases in paranoia with the help of the homophone task (see Mathews et al. 1989). Participants heard sets of words that were divided into neutral words, threatening words or homophones. Each homophone had a threatening and a neutral meaning. This task asked participants to spell each word individually after they have heard it.

Results: Contrary to expectation the high paranoia group did not show vigilance for threat in the 500 msec condition. However, after performing a median split in the State anxiety scores it was observed that the high State anxious group was vigilant to threat faces in the 500-msec condition while the low State anxious group was vigilant to happy faces. This result is congruent with the latest research on attentional biases in anxiety (see Bradley et al., 2000). Concerning the homophone task, as expected there was a trend for the high paranoia group when compared to the low paranoia group to prefer the threatening meaning of the homophone over and above the neutral one. Nevertheless, this trend did not reach statistical significance and this implies that there wasn't strong evidence to make an argument for interpretative biases in paranoia.

Conclusion: The visual-probe task failed to show attentional biases in paranoia but it showed attentional biases in State anxiety. The homophone task however showed a trend for the high paranoia group to spell more threatening spellings than the low paranoia group. The same trend is observed in the State anxiety groups. Methodological and theoretical implications of the results are discussed.

Introduction

1.1. What has been done in the study of paranoia?

Paranoia as a clinical phenomenon is described in the DSM – IV as a symptom present in certain disorders including Paranoid Schizophrenia and Delusional Disorder. The main features of paranoia are the beliefs that one is being plotted against, thwarted, spied upon and harmed by a significant other (an individual or a group). Extreme emotional distress and outbursts of anger and suspiciousness usually accompany these beliefs.

Research paradigms in paranoia have tried to investigate the causes of deluded beliefs. Influential theories in the field suggest that persecutory delusions may be the result of cognitive deficits and reasoning biases present in patients (see Bentall et al., 1994; Garety et al. 1991). This chapter will argue that paranoid thinking in a college student sample is related to interpretative and attentional bias that affects reasoning. The rationale for studying paranoia in a student sample was the demonstration that paranoia is a psychological phenomenon that can be observed in the normal population and not just in clinical groups (see for example Fenigstein & Venable, 1992). Also, as one of the goals of this research was to “normalise” paranoia and to provide support for the argument that paranoia exists in a sample from the normal population, and demonstrates specific characteristics, it was reasonable to test a “normal” rather than a clinical population.

1.2. Studies using a clinical population

Since most studies in paranoia have used a clinical population, it is important to review the main findings and see it on the theories that have been used to explain clinical paranoia and that can provide a basis from which to formulate useful hypotheses. From the literature on paranoid delusions, Garety and Hemsley (1994) proposed a hypothesis that delusions stem from a reasoning bias. This bias was firstly described as a jump-to conclusions bias, and more recently Garety and Freeman (1999) have described it as a data gathering bias that makes it difficult for patients to

reason in a coherent and logical way. A jump-to-conclusions bias is a tendency for individuals to switch their hypothesis quickly in the basis of little information. On the other hand, a data gathering bias is not so much a probabilistic reasoning deficit (i.e. a deficit related to elaborating hypotheses and predicting events), however, it implies a tendency to gather less information to test a hypothesis and a tendency to abandon it when contradictory evidence suggests the hypothesis is wrong.

In order to test the argument that deluded patients have a jump-to-conclusions reasoning bias, Garety, Hemsley and Wessely (1991) performed a study using methodology drawn from the Bayesian theorem. In other words, Garety et al. (1991) used an inferential reasoning task in which participants are shown two containers of coloured beads. One container has pink and green beads in the reverse proportion to that in the other container. The containers are placed out of sight and the experimenter draws a sequence of beads from one container. Participants have to indicate when they believe that they can make a judgement about which container the beads are being drawn from and how confident they are about their decision. Results from this study demonstrated that schizophrenic deluded patients and non-schizophrenic deluded patients gathered less information before making a judgement than anxious and normal controls (i.e. waited for fewer beads to be drawn). They were also overconfident in rating the correctness of their decisions. Therefore, both groups of deluded patients show the same general pattern of an overconfident jump-to-conclusions style of belief formation when compared to the two control groups. Garety et al's (1991) study also found that the deluded groups were more likely than controls to change their hypothesis when faced with disconfirmatory evidence.

Garety et al's research suggests that delusions can be found in the absence of marked intellectual deterioration. Deluded individuals can reason in a logical-deductive way and are perfectly able to make accurate judgements of probability when given all the relevant information (Garety and Freeman, 1999).

Bentall, Kinderman and Kaney (1994) have developed a different theory and research program for persecutory delusions. Bentall et al. (1994) hypothesised that threat-related information in the environment activates self/ideal discrepancies which then promote a self-defensive attributional bias towards locating the cause of negative events external to the self. In a more elaborate manner, delusions have the purpose of maintaining self-esteem by avoiding discrepancies between the "ideal" self and the "actual" self. In this way, delusions have a clear ontological meaning and purpose.

They are assumed to be maintained by an attributional bias that externalises negative events and also blames other people for negative events. By comparison, positive events are attributed to the self.

Bentall and colleagues investigated their theory by testing patients with the Attributional Style Questionnaire (ASQ) and implicit measures (i.e. the Pragmatic Inference Task) for measuring the attributional style (see Lyon, Kaney & Bentall, 1994). Results from their studies provided support for a “distorted” attributional style in paranoia that was characterised by the tendency to “personalise” events, i.e. to blame an individual for negative outcomes instead of blaming bad luck or situational circumstances.

Bentall et al’s (1994) and Garety et al’s (1991) theories are very influential in the study of paranoid delusions. They will help to formulate hypotheses in the field of attentional biases and paranoia.

1.3. How can theories about reasoning biases in delusions enlighten the study of interpretation biases in paranoia?

The phenomenon described as *negative interpretation bias* has been researched quite widely in anxiety (see Calvo & Castillo, 1997; Mathews, Richards & Eysenck, 1989). It is advocated that several functions of the cognitive system are thought to be susceptible to strong biases by emotion. Indeed, influential models of anxiety predict that anxiety proneness is significantly involved in information processing biases of two types: attentional and interpretative (e.g. Williams et al., 1988). Individuals scoring high on a measure of anxiety attend selectively to threat related information and demonstrate a systematic tendency to impose threatening interpretations on ambiguous words and sentences, i.e. they show an interpretative bias for ambiguous information (Calvo & Castillo, 1997).

Thus, drawing from the theories on paranoid delusions it can be argued that if people who are paranoid display certain reasoning biases, such as a tendency to gather less information to test for an hypothesis, then it would be likely that they also would tend to interpret ambiguous information erroneously (as was observed in anxious individuals). Indeed, if as Garety et al. (1999) argued, people suffering from paranoia tend to display reasoning biases when testing for hypotheses and probabilities, then

they also should show interpretative biases when appraising information. Since these people have a tendency to “jump to conclusions” it would be reasonable to argue that when faced with ambiguous contexts they would provide the first explanation that “pops” into their mind that is congruent with their paranoid beliefs. That is, paranoid individuals as well as highly anxious individuals will read threat into ambiguous situations. It is important to note however, that although the type of threat is similar for both paranoid individuals and anxious people such as social threat (e.g. interacting with a group) the interpretations provided for the situation will differ as paranoia dwells on the intention to harm from other people against oneself.

Furthermore it is also reasonable to argue that if people with paranoia do display an interpretative bias for ambiguous information they should also have an attributional style for events that is biased in terms of attributing causes for bad events to other people (as argued by Bentall et al., 1994). Indeed, if they have a tendency to explain ambiguous information as threatening then they should attribute the causes of negative events or “perceived” negative events to a threatening agent.

1.4. How are we going to test for an interpretative bias in paranoia?

As one aim of this study is to test for an interpretative bias in individuals from a normal population who score highly on a paranoia scale, it is useful to adapt the methodologies used in the study of interpretative bias present in anxiety to the study of paranoia itself.

Mathews, Richard & Eysenck (1989) proposed one methodological paradigm for testing an interpretative bias in anxiety. They proposed that an interpretative bias could be observed when the more threatening meaning of a homophone is preferred to an alternative non-threatening meaning. In order to test for this Mathews et al. (1989) asked participants to listen to ambiguous words (e.g. “die”/ “dye”) and then to write down the word’s spelling. Homophones are ambiguous words because they sound the same but have different spellings and meanings, and Mathews et al. predicted that participants who score high in anxiety would be more likely to spell the threatening version of the word indicating an interpretative bias.

The results of this study showed that clinically anxious participants had an interpretative bias thus supporting Mathews et al’s hypotheses.

A similar prediction can be made about non-clinical participants who score high on a paranoia scale. They are likely to favour the threatening meaning over the neutral meaning of the homophone.

1.5. Is there an attentional bias to threat in paranoia similar to that observed in anxiety?

There is some evidence that patients suffering from persecutory delusions show attentional biases to threatening words (Bentall & Kaney, 1989). For example, Bentall & Kaney (1989) used the Emotional Stroop to measure attentional bias. This task involves asking participants to name the colour of words which are either meaningless strings of Os, neutral words (BUD, RECIPE, NUMBER, DIAMOND and COLLECTOR) or affective words that are either depressive in content (SADLY, DEFEAT, AFRAID, REJECT and HOPELESSLY) or paranoid (SPY, THREAT, FOLLOW, WHISPER, PERSECUTE). Results demonstrated that compared to the group of “normal” controls and the matched psychiatric group, deluded patients showed a selective increase in response time for paranoid words, implying that they are biased towards threat (as the threatening meaning competes with the colour naming for attention).

Bentall & Kaney (1989) advocated that evidence for an attentional bias in paranoia, may suggest that this attentional bias has a role in maintaining certain beliefs about the world, in this case deluded beliefs.

Other studies with paranoid patients (see e.g. Fear, Sharp & Healy, 1996) have tried to find attentional bias in paranoia using an Emotional Stroop task. However these studies were not clear about the aetiology and presence of the phenomenon, as they did not measure attentional biases “online”. That is the Emotional Stroop task asks for an interpretation of the word and that may activate the paranoid beliefs that will influence the naming of the word. This being the case, it may be that paranoia as itself influences the choice of an emotionally valenced word that is congruent with the core beliefs (such as persecution) and not the presence of attentional biases to threat. More recently a study by Freeman, Garety & Phillips (2000) failed to find hypervigilance for threat in individuals who suffered from

General Anxiety Disorder or in deluded people with persecutory delusions using visual scan paths.

Recently a study by Green, Williams & Davidson (2001) started to explore the new field of research on attentional biases in a normal population of delusion-prone individuals. Green et al. (2001) asked fifty undergraduates to complete the Peters et al. Delusions inventory (PDI) as an index of delusional ideation (Peters, Joseph & Garety, 2001). They then did a median split on participants' scores and divided them into a group that is high versus a group that is low in delusion-proneness. Green et al. hypothesised that according to the literature on attentional biases and delusions, individuals that are high on delusion-proneness should demonstrate an attentional bias to threat when identifying emotional facial expressions (e.g. Bradley, Mogg, Falla, & Hamilton, 1998).

The experimental task consisted on asking participants to identify out loud an emotion depicted in faces showing anger, fear, sadness or happiness. Results showed that the group that was high on delusion-proneness took significantly longer to identify angry expressions when compared to the group that was low in delusion-proneness. Those two groups did not differ in their reaction times (RTs) to any other facial expressions. Green et al. (2001) interpreted their results by suggesting that the delayed response of delusion-prone individuals was consistent with previous findings of pre-conscious attentional bias in deluded individuals (Bentall & Kaney, 1989; Fear et al., 1996). Green et al. also (2001) argued that their sample of delusion-prone individuals were showing a bias that was occurring during conscious and not pre-conscious (as demonstrated by Bentall & Kaney, 1989) appraisals of the angry face stimuli. In other words, Green et al. (2001) argued that their finding suggested the presence of a bias occurring later during covert appraisals of angry face stimuli in such way that the stimulus has seemingly captured the individuals' attention. The increased latency for naming faces would then reflect the difficulty in disengaging emotional material from consciousness.

Moreover, Green et al. (2001) pointed out that the convergence of evidence across pre-conscious and conscious levels of attention may suggest the existence of a bias throughout the cognitive system (i.e. initial orienting bias for threatening stimuli and subsequent consciously shifting this material from the focus of attention). That is, evidence for attentional biases in delusion-prone individuals from a normal population seemed to support the vigilance avoidance model (Bradley et al., 1998) of anxiety.

It is also the case that Green et al's findings (2001) not only provide support for a vigilance avoidance model in delusion-prone individuals, but is also congruent with an idea of a continuum of a maladaptive pattern of thinking that may result in clinical delusions.

From the perspective of Evolutionary theory one could argue that pre-conscious attentional biases to threat have an adaptive function, they are part of a primitive appraisal-response mechanism that is sensitive to threatening information and provides the ground for a fast and defensive response (Gilbert, 1998a). This primitive appraisal-response mechanism is prone to errors because it is fast track and automatic (i.e. pre-conscious). On the other hand, the other system proposed by Gilbert (1998a) to be involved on information processing, i.e. the higher-order mechanism, is in charge of forming beliefs and models of the world while consciously appraising information. This being the case, this higher order mechanism may be forming the delusion or the product of initial attentional biases (Gilbert, 1998ab). One interpretation of Green et al's (2001) results is that deluded-prone individuals were presenting attentional biases to threat information while their higher-order system was constructing the distorted and dysfunctional view of the world.

1.6. Why use research paradigms for anxiety in the normal population to test for an attentional and an interpretative bias in paranoia?

Studies to date on clinical paranoia fail to provide a valid and clear picture into attentional biases and paranoia. As a result, this study will draw from the methodologies used in the literature on anxiety to test for the vigilance-avoidance model (see Bradley, Mogg, Falla & Hamilton, 1998) in paranoia. Following studies with a clinical population of patients suffering from paranoid delusions that show attentional biases (e.g. Bentall & Kaney, 1989), we speculated that maybe there may also be attentional biases as well in a sample from the normal population that displays non-clinical paranoia.

Further, since Green et al. (2001) presented evidence in support of a vigilance avoidance model in individuals from a normal population that are delusion-prone it would be interesting to continue to research attentional biases in paranoia in a normal population by drawing on research paradigms used to test for this model in anxiety.

As paranoia and anxiety seem to share a lot of features in common, such as the fear of a threatening stimulus and we are testing for attentional and interpretative biases in a sample from the normal population, it was reasonable to adopt the paradigms used in research on anxiety in the normal population to study paranoia.

1.7. The vigilance-avoidance model and research on attentional biases present in anxiety

The vigilance-avoidance model for anxiety proposes that individuals who are highly anxious have a tendency to scan their environment looking for threat (i.e. initial threat). Evidence for the presence of a bias to threat in anxiety comes from subthreshold versions of the Stroop (e.g. Bradley, Mogg, Millar & White, 1995) and the dot probe task (e.g. Bradley, Mogg, & Lee, 1997).

Intuitively and under an evolutionary perspective, this scanning behaviour has a reason: anxious individuals are sensitive to threat so they should be vigilant for it, and the same can be argued for individuals that show paranoia that is, as they think someone is persecuting them, it would make sense that they too would be vigilant for any potential source of threat in the environment in order to avoid harm (Gilbert, 1998a).

An important question arises to why anxious individuals do not habituate to threat stimuli. One potential answer to this question is that anxious individuals show a vigilance-avoidance pattern of processing, where following initial orienting to threat stimuli, they rapidly divert their attention elsewhere in order to avoid aggravating an already aversive state of fear (e.g. Mathews, 1990).

This avoidance behaviour would also make sense, as anxious individuals do not want to face threat (e.g. when in a public situation, anxious individuals tend to avoid facing individuals and engaging in conversation, see Amir, Foa & Coles, 1998).

Also, from a clinical perspective, rapid detection of perceived threat stimuli which are objectively harmless, followed by avoidance, is likely to prevent the individual from learning that the stimulus is innocuous. In this case, such a pattern of emotional processing of fear stimuli may underlie or and maintain clinical anxiety (Rachman, 1980).

In the same way to as clinical anxiety, people who suffer from persecutory

delusions also tend to avoid sources of threat. For example, Dixon (1991) hypothesised from an evolutionary perspective that paranoid patients with persecutory delusions will present cut-off behaviours (i.e. behaviours that would reduce anxiety and would try to avoid threat) such as gaze avoidance, when they cannot escape a potentially threatening agent.

Thus, in an interview with paranoid patients, it was found that such patients employed an exceedingly polarised pattern of gaze, which meant that they either stared or looked away. Furthermore, when those patients looked at the therapist they lowered their head or they oriented their head away from the interviewer. This gave the impression of them looking out of the corners of their eyes thereby signaling incipient flight. Their pattern of eye gaze also included looking away and moving their eyes or even closing them, i.e. cut-offs. Paranoid patients' eye gaze profiles are polarised into "looking at" the threatening agent and avoiding or escaping (i.e. "looking away" or close the eyes).

This study suggests in clinical paranoia there is a tendency to be initially vigilant and then to avoid threat. However, as the methodology employed by Dixon (1991) fails to demonstrate in a clear way the cognitive mechanisms of attentional biases in paranoia, it was decided that in this study we should employ the dot-probe task to measure online attentional biases in individuals from the normal population that show paranoia. This task has been used in several studies in anxiety (see for example, Mogg & Bradley, 1999) and will be described in more detail below.

An alternative to the vigilance-avoidance explanation of why anxious individuals who score high on a paranoia would avoid threat, a more conventional cognitive view would argue those individuals would demonstrate a bias throughout the cognitive system so that once their attention is captured by the threat stimulus, there is a subsequent difficulty in disengaging it. This view would be consistent with Beck's (1976) schema model that suggests that anxiety-related biases favouring threat stimuli operate in both initial orienting and maintenance of attention. That is, the pre-attentive processes that are likely to be involved in initial orienting of attention towards threat stimuli would with time allow for a more in-depth analysis of the stimuli by other attentional mechanisms.

For theoretical reasons, it is important to investigate the time course of attentional bias in paranoia, as Bradley, Mogg, Falla & Hamilton (1998) did with

anxious individuals, to observe whether paranoid individuals show a vigilance-avoidance pattern of attention or whether they demonstrate a bias in the initial shifting of attention towards threat, as well as in maintenance and locking of attentional resources to threatening stimuli. Another possibility is that a paranoia-related bias operates only in initial vigilance responses to threat, and that there is simply no paranoia-related bias in those processes of sustained attention. To test for this, there were two temporal durations in this study to examine the changing course of attention over time (see Bradley et al., 1998).

In order to test the vigilance - avoidance model and alternative hypotheses for paranoia-related attentional mechanisms we used the methodology that was described in Bradley et al's (1998) paper that tested the same hypotheses as the ones described here but with an anxious group. The procedure involved in this task included the presentation of a pair of faces that are either threatening, neutral or happy, followed by a probe stimulus. Participants are asked to press a key as quickly as possible in response to the probe. The rationale for this task is that if attention is diverted to threat stimulus, participants will be faster in responding to probes, which appear in the same location.

Emotional faces were chosen instead of single words as on the basis of Ohman's (1993) argument, that from an evolutionary perspective, there are stimulus analysis mechanisms at an early stage of information processing that are sensitive to biologically relevant stimuli, such as angry faces and which automatically direct attention to this type of stimuli. As a result, emotional faces are likely to be more potent than single words in eliciting attentional biases. In addition pictures of emotional facial expressions are naturalistic and ecologically valid (i.e. they exist naturally in the environment). They also avoid a potential confound between stimulus threat value and subjective frequency of usage. That is, anxious and probably paranoid individuals are likely to have a higher frequency of use of threat-related words than other individuals and this may blur the interpretation of results from studies using words stimuli (see Bradley et al., 1998 for a more detailed discussion).

The rationale behind initial versions of the dot-probe task (MacLeod, Mathews & Tata, 1986) is that when a pair of words or faces are presented at a short SOA (Stimulus Onset Synchrony) such as 500 msec., participants who are anxious would detect the dot-probe faster when this probe followed the threat face compared to a neutral or happy one than low anxious individuals.

In later versions of the task (e.g. Mogg, Bradley & Williams, 1995), a probe was presented on every trial following the face or the word pair, and participants were required to indicate its position on the screen (e.g. top or bottom). This procedure has methodological advantages such as obtaining data from every trial, allowing for more conditions to be assessed e.g. different emotional face types and exposure durations). It also avoids a problematic confound between the probability of occurrence of threat word and that of the probe, which occurred in earlier versions of the task (see Bradley et al. 1998).

Bradley et al. (1998) however expressed some concerns about the revised version of this task. They argued that participants might adopt a strategy of attending to only one side of the screen (e.g. they might prefer to attend to the left and infer that if the probe was not on the left that it had appeared on the right) in which case the task would be failing to measure attentional biases. To solve this problem, Bradley et al. (1998) developed an alternative form of task that would discourage this type of response strategy. They constructed a forced choice reaction time version of the dot probe task, (see for example MacLeod & Chong, 1998) where on each trial the probe was either a vertical pair of dots (:) or a horizontal pair (..) and the response was to indicate which type of probe was presented by pressing one of the two keys. This procedure therefore requires participants to make a positive identification of each probe.

The study reported have adopted a similar version of the dot probe task to the one constructed by Bradley et al. (1998). The only difference version type of probe. In this study instead of using dots we used arrows. Thus, on each trial the probe was either an arrow pointing up (↑) or an arrow pointing down (↓). Participants were therefore required to identify which of the two arrows was presented on the screen by pressing a button of a response box corresponding to the arrow.

To examine the time course of the attentional bias for threat faces two exposure durations were used for the face stimuli: 500 msec and 1250 msec. The 500 msec exposure duration has been used many times in the dot probe task with both word and face stimuli (Bradley et al., 1997; Broadbent & Broadbent, 1988). Not only has this exposure duration been used widely in research but it is also assumed to reflect an initial shift in attention (e.g. Williams, Watts, MacLeod & Mathews, 1988). Indeed, at the 500 - msec exposure duration the initial shift in gaze to the emotional stimuli was correlated with the attentional bias measure from the visual probe task

(i.e. the bias measure reflected which emotional stimulus was looked at first) (Bradley, Mogg & Millar, 1998).

The duration of 1250 msec was included to measure whether or not attentional biases for threat stimuli would be sustained in a longer time interval. Thus, when the SOA is increased to 1250 msec, the vigilance-avoidance model predicts that participants that high anxious compared to low anxious participants will take longer to detect the dot when it is preceded by the threat face compared to when it is preceded by a happy face or a neutral one. Therefore highly anxious individuals would present a reverse pattern of attention to the first initial vigilance mode. This is thought to be the consequence of allowing the faces which stay longer to be fully encoded, implying that, with longer SOAs individuals would have spent time processing information about the face in order to make an effort to avoid dwelling on threat stimulus, i.e. to divert attention away from threat.

If we argue that individuals who score high on a measure of paranoia in the normal population also display a vigilance-avoidance pattern of attention then we could hypothesise that those individuals in a dot-probe task would present the same kind of performance observed in highly anxious individuals. That is, individuals who score high on a paranoia measure for the normal population have a tendency to respond faster to a dot when it is preceded by a threatening face at the 500 msec SOA than people who score low in paranoia. However, when the SOA for the face presentation increases, individuals who score high on a measure for paranoia compared to the group that scores low on the same measure, would increase their reaction times to detect the dot which is preceded by a threat face (see Bradley et al. 1998). Or whether in the 1250 msec condition participants that score high on paranoia maintain the predicted attentional bias in the 500 msec condition. That is, paranoid individuals would continue to be vigilant to threat in the 1250 msec condition when compared to individuals that are not paranoid.

This study thus comprised two tasks: the homophone task and the dot-probe task. One task was intended to measure interpretative biases whereas the other was intended to measure attentional bias in people from the non-clinical population who are prone to paranoia. The methodology was drawn from studies on anxious individuals from the normal population and its aim was to find evidence for the following hypotheses: (1) participants scoring high on the General Paranoia Scale

(GPS; Fenigstein & Venable, 1992) will prefer the threatening meaning of homophones over and above the neutral meaning when compared to participants who score low in the GPS and (2) people who score high on paranoia (as measured by the General Paranoia Scale) would initially (in the 500 msec exposure condition) respond faster to a probe when it is preceded by a threatening face rather than by a happy or a neutral one. (3) Whether this predicted attentional bias would be maintained at the longer interval (i.e. the 1250 msec exposure condition) or whether avoidant strategies may emerge in the latter condition, i.e. whether participants would avoid threat faces.

Method

Participants

Participants were university students from the Departments of History, Psychology and Politics at the University of Southampton.

The total sample consisted of 114 students who were contacted in the first phase of the study. These students filled in the screening questionnaire (i.e. Fenigstein & Vanable's General Paranoia Scale) and were asked permission to participate in the second phase, i.e. the experiment. The Fenigstein & Vanable's General Paranoia Scale was used as a screening measure as it provides a brief, reliable and convenient estimate of general paranoia and allowed the researchers to recruit those with more extreme paranoia scores. Also Fenigstein & Vanable's questionnaire is the only one in the literature that measures general paranoid beliefs in the normal population. As this study used a normal sample it was best to use this questionnaire as a screening measure.

Group Characteristics

Participants were allocated to two groups on the basis of their scores in Fenigstein & Vanable's General Paranoia Scale (1992) obtained during the screening.

After doing a median split, those scoring more than 42 were allocated to the high paranoia group and those scoring less than 28 were allocated to the low paranoia group. As a result, there were twenty-one participants allocated to each group making the total sample of forty-two.

Procedure

After being assigned to groups: high versus low in paranoia (as measured by the General Paranoia Scale), participants were contacted by the researcher and asked to participate in the experiment. They would come to a research cubicle where they were instructed by the researcher about the two tasks that they had to perform.

First of all each participant had to fill in a consent form consenting their participation in the experiment. Afterwards the researcher asked the participant which hand he or she used for writing and whether she or he wore glasses. Those questions

were made in order to control for external variables that could affect the performance in the experiment.

When finished with the questions, the researcher introduced the participant to the first task of the study:

❖ Visual-probe task

The procedure for this task was based on Mogg and Bradley's experiments using visual-probes and faces.

Stimulus Materials

The materials for this task included face stimuli consisting of pairs of photographs of 64 different individuals that were used previously by Bradley et al. (1998). Each pair consisted of two pictures of the same person, with one photograph portraying an emotional expression and the other a neutral expression. Half (32) of the emotional faces were threatening (i.e. they depicted an angry face) and the other half were happy. Half the faces of each type were male and the other half female. The 128 faces were selected from a pool of 400 photographs on the basis of judges' ratings of how threatening or how happy each face expression was (see Bradley, Mogg, Falla & Hamilton, 1998). The size of each photograph is approximately 40 x 60 mm and they were presented side by side so that for each face type and gender, half of the emotional faces were on the left and half on the right, with a distance of 100 mm between their centres. Half the trials presented the pairs of threat vs. neutral faces whereas the other half presented the pairs of happy vs. neutral faces.

Procedure for the Visual-probe task

The probe detection task was comprised of six practice trials followed by two buffer and 128 experimental trials with each face pair being presented twice. At the start of each trial, participants were seated 120-cm from the monitor and level with

the centre of the screen. At the start of each trial, they were asked to look at the central fixation cross for 500 msec. Each trial started with a central fixation cross followed by a face pair with half of the pairs being displayed for 500 msec and the other half for 1250 msec. Immediately after the display of the face pair, the probe stimulus was presented in the location of one of the faces and then participants were required to press one of the two buttons of a response box to indicate the type of probe (▲ or ▼) as quickly as possible without making mistakes.

The response box had one button on the top that indicated that this one should be pressed when participants saw an arrow pointing up, and another button at the bottom of the response box indicated that this one should be pressed when an arrow pointed down. The probe remained displayed until a response was made, or for a maximum of ten seconds. Moreover the inter-trial interval varied randomly between 500 msec and 1250 msec. Those trials were presented in a new random order for each participant.

Feedback was given on trials in new random order during practice only to help participants learn the discrimination task.

Two versions of the dot probe task were used (see Bradley, Mogg, Falla & Hamilton, 1998) so that the allocation of the face stimuli to the two exposure durations was counterbalanced across the sample. This means that half of the face pairs were presented at 500 msec and the other half at 1250 msec in one version and vice versa in the other version. Half of the participants received one version of the task and the remainder received the other half.

Their reaction times (RTs) to probes were recorded by the computer's software. The position of the emotional face and the position of the probe were balanced across trials so that each appeared in either location with equal frequency.

Once the participant has finished the task the researcher introduced him or her to the next task:

❖ Homophone task

Materials

We used the 66 words that were employed by Mathews, Richards & Eysenck (1989) in their study. Some words were added replacing others. Those words were either threat words or certain homophones that were related to the paranoid theme, such as “spied” as a threat word and “stalk/stork” as a homophone (see table 8). The 66 words were matched for frequency of usage and evaluated for their threat value.

The method was similar to that in Mathews, Richards & Eysenck’s (1989) paper with minor modifications (i.e. there was no psychophysiological recording therefore there wasn’t any delay between presenting the stimulus and writing down the response), participants were asked to seat at a table and given the following instructions: “In this study you will hear a series of words. A word will be presented followed by a 10-second interval. During this interval you are asked to write down the word that you have just heard. At the end of the interval, you will hear another word and you are asked to write it down. This procedure will continue until the task is over.” After being given the instructions participants heard words played from tape-recorded lists in one fixed random order. All those words were matched for frequency and rated for their threat value. To avoid frequency and word value effects, both spellings (neutral versus threat) of homophones were presented to a group of ten judges who rated them for threat value. Each threatening interpretation was then matched with an unambiguous threat words of similar word frequency and threat value and the neutral interpretation was matched to an unambiguous neutral word in a similar way. Furthermore, each unambiguous threat word was matched for frequency

with an unambiguous neutral word. The ending result was a total number of 56 words (see table 3 and Mathews et al. 1989). In addition to 56 critical words, there were 10 practice words at the beginning of each tape. From the list of 56 words, 14 were homophones that had either a threatening or neutral meaning (e.g. Liar/ Lyre), 14 were unambiguous threat words and 28 unambiguous neutral words.

Questionnaires

At the end of the session participants completed questionnaires assessing mood and paranoia. The screening measure (i.e. Fenigstein & Venable's General Paranoia Scale, 1992) was presented again to participants. This was in order to control for external effects due to the environment where those questionnaires were filled in (as screening questionnaires were completed under non-standardised conditions such as the classroom environment) and to make sure the answers given by participants were reliable by matching answers at time 1 (screening) with the ones at time 2 (testing). Participants also had to fill in the STAI (State Trait Anxiety Inventory by Spielberger et al. 1983) and the Fear of Negative Evaluation (Watson & Friend, 1969). Those two questionnaires were part of the study in order to assess the effects of anxiety on the performance.

After finishing filling in the questionnaires participants were thanked for their participation and were given a written debriefing statement and whenever requested the researcher would further explain the study to them. Participants also received money for their participation. The Ethics Committee in the Department of Psychology allowed this particular procedure at the University of Southampton.

Results

Group Characteristics

The groups (high versus low paranoia) differed significantly in their scores of Trait anxiety [$t(40) = 3.83, p < 0.01$], State anxiety: [$t(40) = 2.86, p < 0.01$], GPS at time 1: [$t(40) = 15.42, p < 0.01$] GPS at time 2: [$t(40) = 6.19, p < 0.01$]. These results indicated therefore that the group that scored high in the GPS at time 1 also scored high on Trait and State anxiety and on the GPS at time 2 when compared to the group that scored low in paranoia in the GPS at time 1 (see table 1 for means).

The two groups did not differ in age [$t(40) = 1.00$ n.s.] or in the male: female ratio. For both high and low paranoia groups there were 17 females: 4 males respectively.

Table 1
Characteristics of GPS groups

	High Paranoia		Low Paranoia		t (40)	p
	Mean	(SD)	Mean	(SD)		
Age	19.0	(0.0)	19.1	(0.4)	1.00	n.s.
GPS at time 1	45.4	(5.2)	27.3	(1.0)	15.42	<0.01
GPS at time 2	44.6	(8.3)	29.8	(7.1)	6.19	<0.01
STAI Trait anxiety	52.4	(8.9)	41.3	(9.7)	3.83	<0.01
STAI State anxiety	44.5	(7.8)	36.1	(10.9)	2.86	<0.01
Fear of Negative Evaluation	19.2	(8.3)	17.1	(7.8)	0.81	n.s.

Notes: GPS at time 1 (i.e. Fenigstein & Vanable's General Paranoia Scale at screening), GPS at time 2 (i.e. Fenigstein & Vanable's General Paranoia Scale at testing), STAI (State Trait Anxiety Inventory).

Pearson's correlations were performed to measure the strength of the relationship between the variables (see table 2). It was observed that Trait anxiety was significantly correlated with the GPS at time 1 ($r = .54, p < 0.01$). Trait anxiety was

also significantly correlated with State anxiety ($r = .68, p < 0.01$), with the FNE ($r = .41, p < 0.01$) and with GPS at time 2 ($r = .55, p < 0.01$).

On the other hand, State anxiety although significantly correlated with the GPS at time 1 ($r = .39, p < 0.01$), with Trait anxiety and with GPS at time 2 ($r = .38, p < 0.05$) it was not significantly correlated with the FNE. The same pattern can be observed with GPS at time 1 and with GPS at time 2. Both correlate significantly with each other ($r = .78, p < 0.01$). This test-retest correlation indicated that participants score around the same in Fenigstein & Venable's General Paranoia Scale at the screening (time 1) and at test (time 2). The GPS scores at time 1 and time 2 also correlated significantly with Trait anxiety and State anxiety but they did not correlate significantly with the FNE. These results suggest therefore that people that score high on the GPS at screening also score high on Trait and State anxiety and on the GPS at time of testing, however they didn't seem to be scoring higher in the FNE (see table 2 in the appendix X).

Attentional task

Trials with errors are discarded. Reaction times (RTs) that were three standard deviations above each participant's mean were removed as outliers. The overall mean RT was 549 msec, and the means percentages of data lost due to errors and outliers were 1.1% and 1.4% respectively (see table 3 for means in each condition).

Table 3
Mean Response Latencies to Probes (in msec)

Face type	Exposure duration	Face location	Probe location	High Paranoia		Low Paranoia		
				Mean	SD	Mean	SD	
<i>Threat</i>	500 msec	Left	Left	550.78	65.19	559.60	54.64	
		Left	Right	562.68	70.07	587.66	54.17	
		Right	Left	544.09	75.95	557.61	49.80	
		Right	Right	552.97	75.10	568.53	46.72	
	1250 msec	Left	Left	524.0	69.37	546.95	63.04	
		Left	Right	531.98	52.04	558.39	52.25	
		Right	Left	536.95	63.07	547.98	69.08	
		Right	Right	528.23	60.21	567.66	61.41	
	<i>Happy</i>	500 msec	Left	Left	545.50	73.42	545.64	59.07
			Left	Right	548.29	65.62	582.15	55.71
			Right	Left	531.44	54.34	576.37	64.69
			Right	Right	541.93	54.46	571.98	57.24
1250 msec		Left	Left	540.61	61.02	552.95	68.82	
		Left	Right	529.30	64.21	552.31	60.41	
		Right	Left	527.66	66.23	543.64	52.38	
		Right	Right	525.61	63.81	552.34	49.05	

To simplify the analyses, attentional bias scores were calculated from the RT data for each type of emotional face and exposure duration. The bias score was calculated by subtracting the mean RT when the emotional face and the probe were in the same position from the mean RT from the emotional face and probe were in different positions. Thus, a bias score for threat faces was calculated separately for each participant from their RTs to probes on trials with threat-neutral face pairs. Positive values of the bias score for threat faces reflect faster RTs when probes appear in the same position as threat rather than neutral faces (i.e. vigilance for threat faces), whereas negative values reflect avoidance of threat faces. Attentional bias scores were similarly calculated for happy faces (see table 3a and fig. 1 for mean bias scores).

A 2x2x2 mixed design ANOVA of bias scores was carried out with face type and exposure duration as within subjects variables and the paranoia groups (high versus low) as the between subject variable. There was only one significant result. A significant interaction between exposure x group [$F(1, 40) = 4.725, p < 0.05$]. Thus, contrarily to what was expected there wasn't an interaction effect between the group x exposure x face type [$F(1, 40) = 0.05, p = n.s.$].

The exposure x group interaction result suggested that the groups significantly differ in the two exposure times irrespectively of the face type that is presented. We did separate ANOVAS for each exposure condition to clarify the exposure x group interaction. In the 500 msec condition there was a significant group main effect [$F(1,40) = 5.88, p < 0.05$]. The means for this condition indicated that the low paranoia group was more vigilant for emotional faces (mean of threat plus happy bias, $M = 14.5$ msec) than the high paranoia group (Mean = -1.2 msec). In contrast to this, in the 1250 msec condition there were no significant results.

These results demonstrated that the high paranoia group was not more vigilant for threat than the low paranoia group. Instead and contrary to expectation, it was observed that the low paranoia group was more vigilant for emotional faces (both happy and threat faces) than the high paranoia group. Although there is a trend in the opposite direction to expectation (i.e. the mean bias scores for threat for the high paranoia group in the 500 msec condition was 1.5 msec and for the low paranoia group was 8.6 msec) it did not reach significance.

Table 3a)
Mean Bias Scores (in msec)

Face Type	Exposure Duration	High Paranoia		Low Paranoia	
		Mean	(SD)	Mean	(SD)
Threat	500msec	1.5	(28.4)	8.6	(31.2)
	1250msec	8.4	(28.2)	-4.1	(34.7)
Happy	500msec	-3.9	(24.9)	20.4	(34.7)
	1250msec	-4.6	(35.4)	-4.7	(34.5)

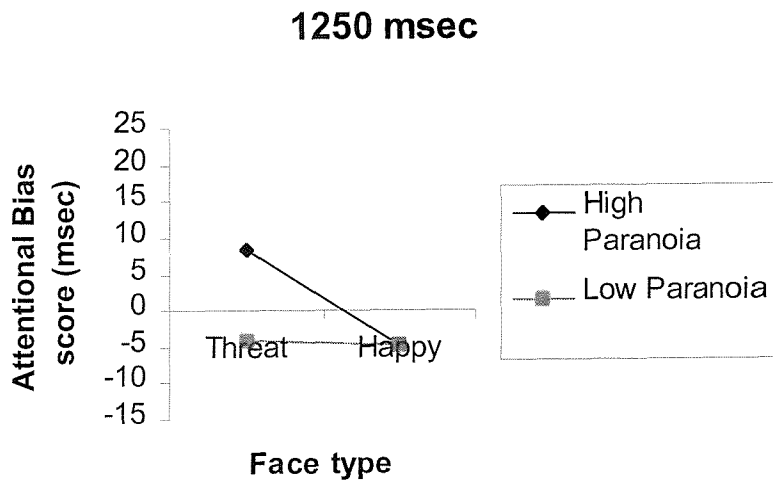
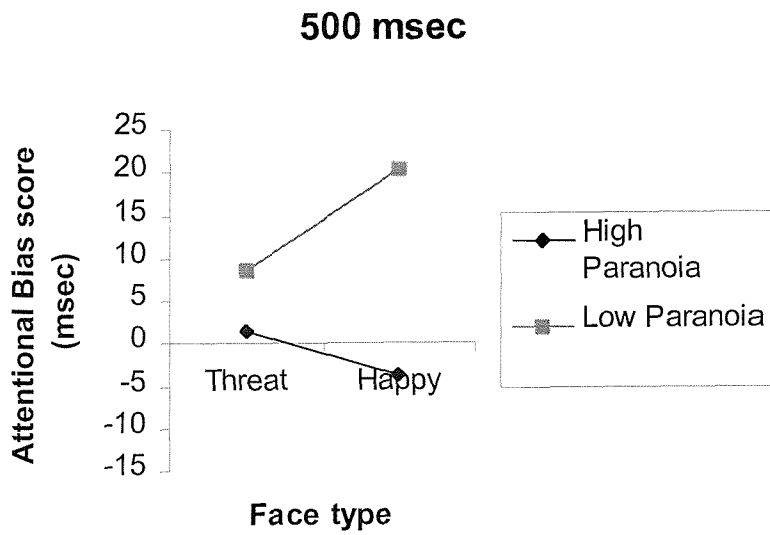


Fig. 1 Attentional bias scores (in msec) for each condition in paranoia

Correlations

Pearson Correlations showed that the attentional bias for happy faces at the 500 msec was significantly and negatively correlated with GPS at time 1 $r = -.32$, $p < 0.05$, with GPS at time 2 (testing) $r = -.33$, $p < 0.05$ and with Trait anxiety $r = -.36$, $p < 0.05$. The higher are the participants' scores on the GPS at both times (1 and 2) and on Trait anxiety, the more likely it was to see them avoiding happy faces at the 500-msec condition.

The other bias scores for threat faces were not significantly correlated with any questionnaires' scores.

Results for State Anxiety

Following Mogg, Bradley, de Bono & Painter (1997) and Bradley, Mogg & Millar (2000) who found that attentional vigilance for threat was a function of State anxiety, we did a median split on participants' scores in the STAI State anxiety to test for this. Participants scoring 39 or more were allocated to the high State anxiety group and those scoring less than 49 were allocated to the low State anxiety group. There were 22 participants in the high State anxiety group and 20 on the low State anxiety group respectively. On the high State anxiety group there were 17 Females and 5 Males whereas on the low State anxiety group there were 17 Females and 3 Males.

Those two groups differ significantly in their Trait anxiety scores [$t(40) = 4.80$, $p < 0.01$] and on GPS at time 1 [$t(40) = 2.62$, $p < 0.05$] and at time 2 [$t(40) = 3.21$, $p < 0.05$] (see table 4). They do not differ significantly in age [$t(39) = 0.07$, $p = n.s.$] and in the FNE [$t(40) = 1.64$, $p = n.s.$] but they do differ in their gender ratio. As reported, there were more females than males in both groups (see table 4).



Table 4
Characteristics of the State Anxiety Groups

	High State Anxiety		Low State Anxiety		t (40)	p
	Mean	SD	Mean	SD		
Age	19.0	(0.0)	19.1	(0.4)	0.07	n.s.
State Anxiety	48.00	(7.31)	31.95	(5.48)	7.98	<0.01
Trait Anxiety	53.04	(7.06)	40.10	(10.25)	4.80	<0.01
GPS at time1	40.00	(9.41)	32.50	(9.07)	2.62	<0.05
GPS at time2	41.81	(10.32)	32.20	(8.95)	3.20	<0.05
FNE	20.13	(7.13)	16.10	(8.76)	1.64	n.s.

A 2x2x2 mixed design ANOVA of bias scores was carried out with face type and exposure duration as within-subject variables and State anxiety's groups as the between-subject variable. There was only one significant result (see table 5 and figure 2 for means) that was the three way interaction between group (high versus low State anxiety) x face type x exposure duration [$F(1,40) = 10.01, p < 0.01$].

To examine the results in more detail we did separate 2x2 ANOVAS in the data for the two exposure conditions. In the 500 msec condition there was a significant group x face type interaction [$F(1,40) = 15.33, p < 0.05$]. This result suggested that the two groups differ when responding to threat relative to happy faces. Contrasts using t-tests showed that the high State anxious group were more vigilant for threat faces than the low State anxious group [$t(40) = 2.11, p < 0.05$]. On the other hand, the low State anxious group were more vigilant for happy faces than the high State anxious group [$t(40) = 2.87, p < 0.05$].

In contrast to what was observed in the 500-msec condition, in the 1250 msec condition there was no significant group x face type interaction [$F(1,40) = 0.96, p = n.s.$]. This result implied that the groups did not differ when responding to both types of faces in the 1250 msec condition.

Table 5
Mean bias scores (in msec) for the State Anxiety groups

Face Type	Exposure Duration	High State Anxiety		Low State Anxiety	
		Mean	(SD)	Mean	(SD)
Threat	500 msec	13.91	(28.45)	-4.68	(28.53)
	1250 msec	3.50	(25.43)	0.59	(38.38)
Happy	500 msec	-4.28	(28.82)	22.12	(30.70)
	1250 msec	2.14	(34.16)	-12.12	(34.20)

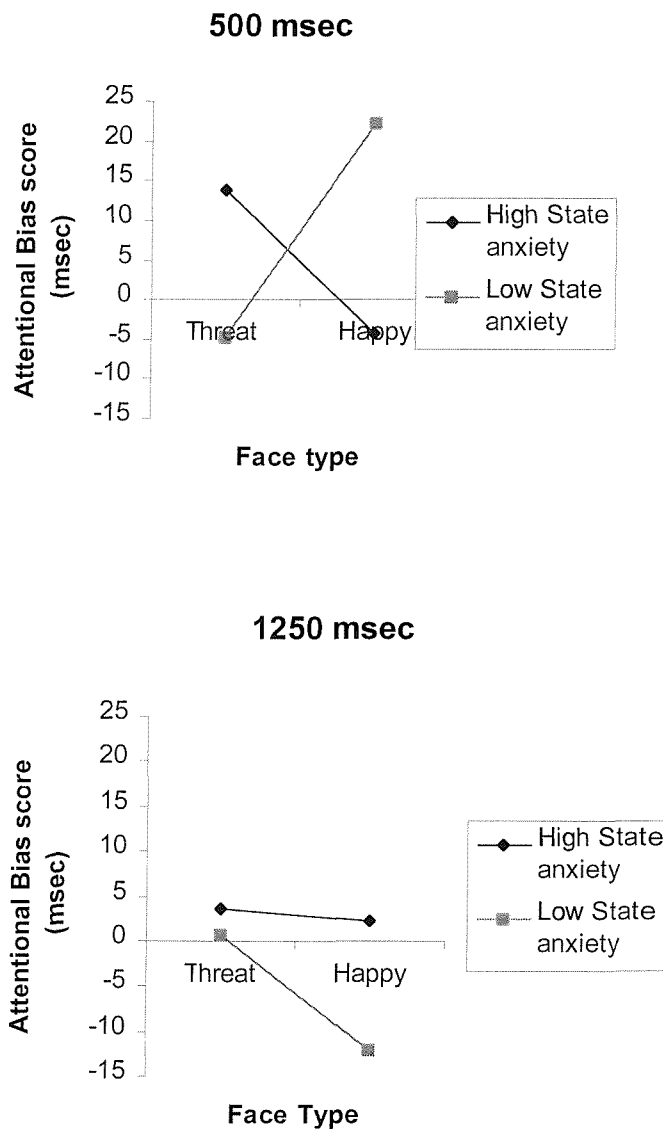


Fig. 2 Attentional bias scores (in msec) for each condition in State Anxiety

Homophone Task

To test for the hypothesis of an interpretative bias in the high paranoia group we did the same as Mathews et al. (1989) in their study of interpretative biases and anxiety. First of all, the number of spellings corresponding to the more threatening of the two meanings was totalled and it was converted into a percentage of all homophones that were spelt in either form. The few spellings that did not correspond to either meaning were eliminated from this total. The resulting mean percentage score was slightly greater for the high paranoia group (69%, SD= 12.22) compared to the low paranoia group (64%, SD = 10.71). Those two means were greater than 50%, indicating that the threatening meaning tended to be dominant in both groups.

An independent samples t-test showed that there was no significant difference between the groups in their preference for threatening spellings [$t(40) = 1.51$, n.s.].

This result suggests that contrary to what was predicted the high paranoia group wasn't spelling significantly more homophones in their threatening form than the low paranoia group. The groups did not significantly differ on the percentage of threatening spellings. Therefore it cannot be argued that there was an interpretative bias in the high paranoia group.

Regarding State anxiety, the mean percentage score was slightly greater for the high State anxiety group (67%, SD = 12.65) compared to the low State anxiety group (65%, SD = 10.74). The means for the two groups were greater than 50% and this implied that the threatening meaning was predominant in both groups. That is, both the high State anxiety group and the low State anxiety group tended to spell more threatening than neutral meanings.

An independent samples t-test demonstrated that there was no significant difference between the groups on the percentage of threatening spellings [$t(40) = 0.48$, $p = \text{n.s.}$]. Contrary to what could be predicted drawing from research by Mathews et al (1989) on anxiety, the high State anxiety group did not present an interpretative bias. It seems that high State anxious individuals did not significantly differ from the low State anxious ones on the number of threatening meanings they spelt.

Correlations between the participant's scores in each questionnaire and the homophones bias score permitted to observe the relationships between variables.

The homophone bias score did not correlate significantly with any questionnaire's scores. Nevertheless, there was a positive trend for the relationship between the homophone bias's score and the GPS' scores at time 1 [$r = 0.27, p = 0.08$]. This means that the participants that score higher in the GPS at time 1 also tend to report a higher number of threatening spellings. The bias score did not significantly correlate with the scores on the GPS at time 2 [$r = 0.15, p = \text{n.s.}$]; the State anxiety scores [$r = 0.11, p = \text{n.s.}$]; the Trait anxiety scores [$r = 0.25, p = 0.09$] and the FNE scores [$r = 0.21, p = \text{n.s.}$]. There is a trend for a positive relationship between the homophone bias score and the scores on the GPS at time 1 and the STAI Trait Anxiety however, it never reaches significance.

Table 6
Characteristics of the homophone bias for GPS and State Anxiety Groups

Table 6a) Homophone bias for Paranoia

Table 6b) Homophone bias for State anxiety

	High Paranoia		Low Paranoia		t (42)	p	High State anxiety		Low State anxiety		t (42)	p
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Hombias	69	12.2	64	10.7	1.5	n.s.	67	12.65	65	10.74	0.48	n.s.

Discussion

This study investigated attentional and interpretative biases in paranoia with the help of the dot-probe and the homophone tasks that are used in research with anxiety groups.

Studies on anxiety suggest that high anxious individuals show an attentional bias towards threatening emotional material (Bradley, Mogg & Millar, 1998). As a result we hypothesised that the group which is paranoid would also show an attentional bias to threat in the dot-probe task.

Furthermore, if we take into account the argument that paranoia is normal and it exists in samples from the normal population then studying the cognitive mechanisms for processing emotional information in a paranoid group from the normal population may provide information on how paranoia is maintained.

The results did not support the view that vulnerability to paranoia is associated with enhanced selective attention to threatening material. On the contrary, and against expectations, the high paranoia group was less vigilant to emotional material than the low paranoia group in the 500 msec condition. This means that the high paranoia group was not demonstrating attentional biases to threat as it was expected.

One of the aims of the study was to examine biases in initial shifting in attention and later avoidance or maintenance of attention by manipulating the exposure duration of the face stimuli. As discussed before, (based on research in anxiety) the hypotheses for the visual-probe task argued that high paranoia individuals were expected to show one of two alternative patterns of bias: initial vigilance followed by avoidance of threat or vigilance in the initial orienting and maintenance of attention to threat.

Neither of those hypotheses were supported by the results. Since the high paranoia group did not show vigilance for threat, all of the hypotheses about the mechanisms of attention did not receive in this study. In contrast to what was expected, the high paranoia group did not present an initial attentional shift to threat therefore the vigilance-avoidance model couldn't be used as the theoretical explanation for results.

Instead it is argued that maybe people from the normal population that present trait paranoia (the high paranoia group) do not show attentional biases to threatening material, at least as measured by the visual-probe task. This task has been used to test

attentional biases in anxiety and it has never been applied to paranoia. Therefore, it is possible that this measure is not an ideal way to examine vigilance to threat in this particular group. With respect to this argument when we examined the attentional biases for the high State anxious group versus the low State anxious group, we got the results that are usually obtained with high and low State anxiety groups in this field (see Bradley, Mogg & Millar, 2000). Indeed, as expected, the high State anxious group showed an initial bias for threat, whereas the low State anxious group showed an initial vigilance for happy faces. Although results for State anxiety did not support the view that high State anxious individuals show a vigilant-avoidant pattern of attentional bias (i.e. there was no significant biases in the long exposure duration), they do support the hypothesis arguing for vigilance for threat in State anxious individuals. More important, these results provide evidence for the reliability of the visual-probe task when measuring attentional biases. Thus, the lack of evidence of attentional biases to threat in the high paranoia group do not appear to be due to problems in the visual-probe task but to something else, such as the group's characteristics. On this matter, note that attentional biases for threat in paranoia have been measured only in clinical groups suffering from paranoid delusions and not in a sample of individuals from the normal population who are paranoid and researchers used other tasks such as the Emotional Stroop Task (Bentall & Kaney, 1989) to examine biases for threatening material in this particular group.

Future work in this area should try to replicate this study with a clinical sample. It would be interesting to observe whether there is an attentional bias to threat in a clinical paranoia group using a visual-probe task. This study failed to find evidence for this bias in a non-clinical paranoia group and this might have been the result of many factors (e.g. levels of paranoia may not have been high enough).

Another aim of this study was to measure interpretative biases in paranoia. Research in clinical anxiety (Mathews et al., 1989) has found that the current anxious group compared to control and the recovered group spelt more threatening meanings of homophones than neutral ones. In other words, the current anxious group interpreted information in a consistent negative way. We used the homophone task described in Mathews et al. (1989) in this study to explore the presence of a negative interpretation bias in the high paranoia group.

As described before it was hypothesised that the high paranoia group compared to the low paranoia group would prefer threatening meanings of the

homophone to neutral meanings. The results, however, did not support this hypothesis. Although there was trend pointing in this direction, it did not reach significance. The high paranoia group did not spell significantly more threatening meanings than the low paranoia group. There was a tendency for the high paranoia group to prefer negative information but this trend was not strong enough to reach significance. In the same way, the high State anxious group did not report more threatening spellings in the homophone task than the low State anxious group. Similar to the results in paranoia, there was a trend for the high State anxious group to interpret information in a negative way but this trend also did not reach statistical significance.

Firstly, one should take into account one problem with the type of task that Mathews et al. (1989) used, which is its proneness to response biases. This means that the homophone paradigm relies on the participants' interpretations that can be inferred from their relative tendency to make quite different emotionally valenced response options. Thus, anxiety and paranoia may determine the bias influencing the response option rather than being associated with a bias in the original interpretation of the meaning (MacLeod & Cohen, 1993).

Secondly, these results may be related to the type of homophones used. It can be the case that the threatening form of the homophone was more prevalent in language than the neutral one, so it is likely that the threatening meaning will be chosen over and above the neutral one. Although frequency effects were controlled for, there are certain homophones such as liar/lyre, that present a threatening form that is more likely to be chosen than the neutral one. This being the case, the type of homophones may blur the differences in spelling between the two groups (high paranoia versus low paranoia).

This is another task that needs to be replicated in the field. The correlational results seemed promising and it would be important to examine interpretative biases in paranoia with another set of words and homophones. Again, there isn't any research in this area with a paranoia group. This is novel research that may provide the foundations for new theories in paranoia.

General discussion

Paranoia in a normal population

This thesis tried to provide a new perspective into the study of paranoia. Literature in this field examines paranoia in clinical populations and defines it as a symptom present in several mental disorders.

Contrary to this argument, this thesis argued that paranoia should be firstly studied in a normal population. Paranoia can be defined as a normal process that is part of a continuum with delusional ideas at the abnormal end. In other words, individuals that demonstrate trait paranoia and report episodes of paranoid experience may be at risk of developing paranoid delusions later in life. This hypothesis of a relationship between trait paranoia and later paranoid delusions nevertheless is beyond the scope of this thesis and demands profound study.

The main hypothesis of this thesis advocated therefore that paranoia is normal and it can be observed in a sample of individuals from the normal population. Paranoia was described here as a normal process that is part of an evolved primitive system whose function is to detect threat stimuli in the environment and respond to it in a fast and automatic way (Gilbert, 1998a). On the other hand, the repeated use of “paranoid” anxious processes leads to the end product that are the delusional ideas of a higher order system that is in charge of belief formation and mental schemas of the world. That is, maladaptive responses to threat with time may degenerate into distorted beliefs about the world.

In order to test for the hypothesis that paranoia is normal first of all it is necessary to question individuals from a normal population for an experience of paranoia and to explore its features. In a first study as a starting point, 116 students from the University of Southampton were given a trait measure of paranoia (Fenigstein & Vanable’s General Paranoia Scale) and a questionnaire (the QPFINP) that was devised on purpose for this thesis to study experiences of paranoia and their varied dimensions (beliefs, behavioural components, impact on mood and so on).

The results from this study showed that 35% of individuals from a sample of 116 were reporting an episode of paranoia and those individuals were also scoring higher than others in Fenigstein & Vanable’s General Paranoia Scale indicating that they have a trait strike of a “paranoid” personality. Those 35% were distinguished

from the 19% of individuals that also reported an episode of paranoia but without a clear statement of an intention to harm from others therefore they were not classified as having felt paranoia.

The QPFINP included a question about the intention to harm from others towards the “paranoid” individual after he or she has reported an episode of paranoia. This question was important to define paranoid experiences and to distinguish them from anxious or other type of experiences that may well be mistaken for paranoia. The belief of an intention to harm is crucial in paranoia (see Freeman and Garety, 2000). When someone feels harmed it doesn’t necessarily lead to paranoia unless this person that was harmed thinks that others were malevolent towards him or her and intended to do harm maliciously. In this study, the QPFINP was able to differentiate well between groups of people that were classified as clearly reporting paranoia, people that do not report paranoia or others that report paranoia but are in fact reporting another type of feelings and beliefs that they identified as paranoia. It was speculated that the fact that some people identify episodes of paranoia that are not paranoia may be due to the conceptual difficulty in separating paranoid experiences from the anxious experiences in a normal population. Both types of experiences share a lot of feelings (such as fear) and may be caused by similar situations (e.g. criticism and rejection from other people). However, and in spite of this intrinsic difficulty, the QPFINP managed to successfully separate people that report episodes of paranoia from people that report other feelings and not paranoia although identifying them as being so.

This particular study also provided a rich description of paranoid experiences including the type of situations that are believed to be inducing paranoia, such as being rejected by others or failing in a task because of others and the behavioural components of paranoia such as the observed tendency to keep the feelings locked inside instead of confronting the threatening agent (which was the original intention to act). Those qualitative descriptions were important just to provide information to what people actually say and do about feeling paranoid and until now there weren’t any studies that allowed for those observations in paranoia.

One very important result from this study was the relationship between reporting paranoid experiences and the highest scores in a measure for trait paranoia in a normal population. This result suggested that the QPFINP was a good measure to study paranoia in a normal population as it clearly identified the individuals that

presented trait-like “paranoid” features (as measured by Fenigstein & Venable’s General Paranoia Scale). Although the QPFINP needs refinements and changes in the future to make it a better measure for paranoia, it was able as a starting tool in the study of paranoia to identify individuals from a normal population that have felt “paranoid” (without the delusional component that is attributed to clinical populations).

This first study, as an initial attempt to measure paranoia in a normal population, was successful in providing a descriptive view into this kind of phenomenon. The aims were straightforward: to measure paranoia in a normal population and provide support for the argument stating that paranoia as defined exists in a sample from a normal population. The results agreed with this argument and provided a different outlook and initiated as well a research paradigm into the study and understanding of paranoia.

Once paranoia and the associated feelings of resentment towards the other that intentionally harmed the “paranoid” individual have been identified in the normal population, the next step in research was to study the cognitive mechanisms behind the appraisal of threat in trait paranoid individuals.

Thus, Study II measured attentional and negative interpretation biases in trait paranoid individuals. This study was of relevance for research in this area as it used methodologies that are employed in the study of anxiety to research in paranoia. The reason why we opted for those methodologies was because recently there has been a shift in research in paranoia that started to measure attentional biases in people from a normal population that are delusion-prone (Green et al., 2001). Also, as paranoia and anxiety share a lot of similarities in terms of their defining characteristics it would make sense to opt for an established methodology in the anxiety field that has been studying attentional biases with a visual-probe task.

A visual-probe task (Bradley et al. 1998) is an experimental task that is composed of pairs of emotional faces (i.e. the happy pair, the threat pair and the neutral pair) and two other stimuli that participants are asked to identify. Basically, participants see pairs of faces appearing in the screen with two-alternated presentation times (500 msec and 1250 msec). Immediately after the face pair is presented one of the two stimuli (e.g. an arrow pointing up or an arrow pointing down) are shown in the screen. Participants are required to identify which of the two arrows are shown in the screen by pressing the corresponding response button.

For the visual-probe task with trait anxious individuals the hypotheses were (Bradley et al. 1998) the following:

- a) Initial vigilance for threat and then avoidance: that is, trait anxious individuals would respond faster than the control group to the probe when it is preceded by a threat face in the 500 msec condition. Contrary to this, trait anxious individuals would in the 1250 msec condition orient their attention to the neutral face in the threat pair, away from the threatening face.
- b) On the other hand, it can be the case that trait anxious individuals would maintain their vigilance for threat in both conditions (the 500 msec and the 1250 msec).

Results from a study by Bradley et al. (1998) supported the view that vulnerability to anxiety is associated with selective attention to threatening material in the 500-msec condition. Such conclusion is indeed broadly consistent with much previous research and cognitive formulations of anxiety (see Williams et al. 1988).

Concerning paranoia the same task as Bradley et al's (1998) was adopted and similar hypotheses for the paranoid group were elaborated. It was argued according to the evolutionary perspective posited by Gilbert (1998a) and Ohman (1993) that people who score high on a measure for trait like paranoia in a normal population should display vigilance for threat. Indeed, from the evolutionary perspective, at an early stage of information processing there is a primitive system (Gilbert, 1998) that is particularly sensitive to biologically relevant stimuli such as threatening faces and which automatically directs attention towards such stimuli. Thus, individuals that present trait paranoia should be more sensitive to threat than others because they use the primitive system that is automatic and fast track to process information.

On the other hand and because this study also examined the course of attention in two stimulus duration times, it was hypothesised according to research in anxiety that individuals that score high on a trait measure for paranoia would in a longer exposure duration for emotional stimuli (in this case emotional faces) either continue to be vigilant for threat or instead they would avoid looking at this type of stimuli. It is argued in anxiety that it may well be the avoidance of threat in conscious appraisal that leads to the aggravation of an already state aversive of fear and this helps to implement the anxious schemas as individuals do not habituate to threat stimuli. Maybe individuals that score high in trait paranoia similarly to anxious individuals, do

not learn that the threat stimuli is innocuous, because they avoid this stimuli when they are fully aware of it. This avoidance pattern may therefore be related to the maintenance of states in paranoia (e.g. fear and ideas about the malevolence of others).

The results from Study II tested for those hypotheses but they failed to find support for them. It was observed that a group of individuals from the normal population that scored high in a measure for trait paranoia did not differ from the individuals that scored low in the same measure when responding to the probe in the 500 msec condition when it was preceded by a threat face. In other words, the ones high on trait paranoia were not vigilant for threat in the 500-msec condition as hypothesised. These high paranoia individuals not only fail to be vigilant for threat in the 500 msec condition but they also are not either avoiding or being vigilant for threat in the 1250 msec condition. This being the case, none of the hypotheses were supported by the results.

Those results were explained in two ways: (a) the task may have not been appropriate to measure attentional biases in paranoia (it was the first study using this task in paranoia), (b) the high paranoia group does not have attentional biases for threat as it has been shown in clinical populations suffering from paranoid delusions.

The dot-probe task is considered to be a reliable measure examining attentional biases in anxiety. Indeed, attentional biases in anxiety were examined using this task and it was found that high State anxious individuals are vigilant for threat (Bradley, Mogg & Millar, 2000). This result is therefore congruent with the evidence of studies in this area. As expected, there was an initial vigilance for threat in the high State anxious group. In comparison the high State anxious group, the low State anxious group was vigilant for happy faces. This result leads one to think that maybe the high paranoia group from a normal population does not show attentional biases for threat.

Further research on this field could use the dot-probe task to measure attentional biases in a clinical group suffering from paranoid delusions. It would be rather interesting to test for attentional biases in this group with a reliable experimental procedure that has been lacking in the field.

More research using other tasks such as the Emotional Stroop task (Bentall & Kaney, 1989), should examine attentional biases for negative information in a sample from the normal population of individuals that are paranoid.

Study II tested as well for an interpretative bias in paranoia. This bias is a tendency to prefer a negative meaning of an ambiguous word over and above a possible neutral meaning (Mathews et al. 1989). That is, the interpretation of meaning of a word or phrase is distorted and intrinsically negative and this leads to deformed schemas of reality.

Interpretative biases in anxiety have been examined with the homophone task (Mathews et al. 1989). This task is very simple: it involves giving participants a list of words that have either a neutral or a threatening meaning. Participants are also given a list of homophones that have two different meanings that are both as frequent as each other in the English language (a neutral and or a threatening one). Homophones are words that although sound the same they have different meanings and spellings. Therefore when participants hear a homophone they have to decide which meaning they will write down. The type of meaning that is chosen is very important for this task. If participants have a tendency to choose consistently the negative meaning then they would show a negative interpretative bias.

In this thesis the homophone task described in Mathews et al. (1989) was used to test for an interpretative bias in paranoia. Contrary to what was expected and observed in anxious individuals, people that score high on a measure for trait paranoia do not prefer significantly more the negative meanings of the homophones than individuals that score low in the same measure do. In other words, individuals that show trait paranoia do not demonstrate a negative interpretative bias for threat as anxious individuals did (Mathews et al., 1989). This result was not expected as individuals that have trait paranoia also display distorted views of the world. This being the case, the deformed beliefs that are held by those individuals might be caused by interpretative bias. This argument did not receive support from results in the homophone task. This might well have been because either the task was not ideal to measure interpretative biases in paranoia (this was the first time this task was used in a paranoid group) or it can be the case that individuals that have trait paranoia do not show interpretative biases for negative information. However, results sound promising and more research is needed in this area either replicating this task or using other tasks to study interpretative biases in paranoia.

Future directions for research

One aspect of subclinical paranoia that was not studied here was the interpersonal one. Paranoia is clearly made of distorted cognitions about the other and his/her intentions towards the self. Following this, researchers in this field such as Bentall et al. (1994) have claimed that people can make “personalistic” attributions. That is they assume that they are capable of controlling events but that an external factor prevents them achieving the needed responses. For example when a student repeatedly fails tests given by a certain teacher while others always succeed. In this case, the student might believe that the cause for failure is not his/her lack of ability but the teacher’s thwarting towards him/her.

People that display a paranoid style of cognition and behaviour in the normal population may feel vulnerable to negative life events and when these happen they will attribute the cause for those events to threatening others (Bentall et al., 1994).

To test for the interpersonal aspect of paranoia that dwells on self-other evaluations one could set up an experiment with induced failure in three different conditions (Bodner & Mikulincer, 1998).

For example, drawing from the experiments performed by Bodner & Mikulincer (1998) on learned helplessness, this experiment could be done in a basic 2 x 3 factorial design for feedback (control, personal helplessness-failure related to the self) and attentional focus (self, external agent, public agent). Participants in the control condition would have to perform a task but they wouldn’t receive feedback. On the other hand, participants in the personal helplessness condition could be exposed to induce failures while receiving messages that 50% of persons succeed in this task.

Concerning attentional focus, this could be manipulated by using a video camera and a monitor which were focused either on participants themselves (self) or in the experimenter (threatening agent) or in an audience (other people performing a task or talking). The dependent variables would be the depressive reactions and paranoid-like responses to failure.

The hypotheses for this study could be that in the external agent condition participants would report (in self-reports on cognitions) paranoid reactions to failure, such as blaming the experimenter for the negative outcome, feeling uncomfortable

while being watched and so on. They also would show paranoid reactions to failure when they feel that an audience (public agent) is watching them. On the other hand, they probably would report depressive reactions to failure, such as feeling untalented or less able to perform tasks as well as others when their attention is focused on the self (i.e. private self-consciousness, Fenigstein & Vanable, 1992).

In conclusion, the role of attentional focus is important for the study of paranoia in social contexts with negative outcomes, because it has been found that paranoid like cognitions are related to the excessive consciousness of the way others perceive, think and behave towards the person that feels paranoid (i.e. public self-consciousness, Fenigstein & Vanable, 1992).

Other studies could examine further the way people that tend to be paranoid react to criticism and social put-down and compare their reactions to the ones presented by people that are not paranoid. Those reactions can be coupled with reports on personal views on their talents, social abilities and certain personal characteristics that can make people that are paranoid feel different from others so that they would stand out in the group (Kramer, 1998).

In a final conclusion, paranoia is a phenomenon that can be observed in many sectors of society (e.g. in the internet there are several sites referring to paranoid cognitions and conspiracy theories) and it seems to be present in Western societies where the focus on the individual's success is a very important value.

In the Western societies there is praise for certain values arguing for an established hierarchy where individuals can move about but only if they can prove they are successful in certain areas. The pressure on the individual to conform to an institutionalised hierarchy is tremendous.

Paranoia could be the result of an interaction between trait characteristics, evolved attentional biases for threatening information and distinctive social aspects such as the individual's status and personal talents. Such a complex phenomenon as paranoia has to be studied in a multidimensional way. The probable causes for paranoia are not known yet but research could study each different aspect in paranoia.

Appendix I

Questionnaires for Study I: exploratory study of paranoia

First version of the QPFINP (Questionnaire for Paranoid Feelings In the Normal Population, 2000)

Research shows that very many people sometimes feel paranoid. It seems quite normal to sometimes think that other people are against you in some way, are talking about you or judging you negatively and are in some way conspiring to harm you. These feelings can be very fleeting! Note that all information provided by you is strictly confidential thus try to be as truthful as you can in your answers.

Please tick the appropriate response

1. *Have you ever had this kind of feeling yourself?*

Yes / No

2. *If yes, please describe an example:*

3. *How distressing was the feeling at the time?*

Not distressing	very mildly distressing	Mildly distressing	moderately distressing	very distressing

4. *Did you act on this feeling?*

Yes / No

5. *What did you want to do?*

6. *What did you actually do about it? (if the answer is yes to question 4)*

. Please describe the actions taken

7. *How much did this feeling preoccupy you at the time?*

Not at all	somewhat	a little bit	a bit	very much

8. *In the last month, have you had this feeling?*

Yes / No

9. *How much impact had this feeling on you?*

None	very mild	Mild	Moderate	Severe

10. *Was this feeling preceded by negative moods, such as sadness and worry?*

Yes / No

11. *At the time, how strongly did you believe in this paranoid idea?*

I thought it was:

Definitely false	probably false	Unsure	Probably true	Definitely true

12. Do you still believe that this feeling was right?

Not at all	somewhat	a little bit	Quite a bit	very much

13. Did you tell anyone what happened?

Yes / No

14. In what kind of circumstances do you feel paranoid?

15. Has there been a change in how you think about the paranoid ideas?

Yes / No

. If yes, please specify:

Thank you very much for your co-operation!

Note that all information provided by you is strictly confidential and anonymous thus try to be as truthful as you can in your answers.

Research shows that it is quite normal to sometimes think that other people want to harm or upset you and are in some way working together against you.

Therefore, people think that this happens to them because they are different from others.

For example, when you get a mark that is lower than you expected and think that the marker doesn't like you and so upset you in some way. Thoughts and feelings like these can be very distressing and also very fleeting, i.e. gone in an instant.

1. *Have you ever had this kind of feeling yourself?* (Please tick the appropriate response)

No / Yes

2. *If yes, please describe an example:*

. (a) *In what way did they, or s/he, intend to harm or upset you?*

. (b) At the time, why did you think this event happened?

3. At the time how strongly did you believe in this explanation?

I thought it was:

Definitely false	probably false	Unsure	Probably true	Definitely true

4. At this present moment, has there been any change in your beliefs?

No / Yes

. If yes, please specify

5. In what circumstances do you get similar feelings?

6. Did you act on this feeling?

No / Yes

7. What did you want to do?

8. *What did you actually do about it?* (if the answer is yes to question 6)

. Please describe the actions taken

9. *How much did this feeling preoccupy you at the time?*

Not at all	somewhat	a little bit	a bit	very much

10. *In the last month, have you had this feeling?*

No / Yes

11. *How much impact had this feeling on you?*

None	very mild	Mild	Moderate	Severe

12. *Was this feeling preceded by negative moods, such as sadness and worry?*

No / Yes

13. *How much did you believe that you deserved the other(s)'s mistreatment?*

Totally undeserved	somewhat undeserved	Unsure	Somewhat deserved	totally deserved

14. *Did you tell anyone what happened?*

No / Yes

Rosenberg's Self-Esteem Scale (RSES, 1965)

Please circle the extent to which the following statements reflect how you feel about yourself.

1. *"I feel I am a person of worth, at least in a equal plane with others."*

Strongly agree Agree Disagree Strongly disagree

2. *"All in all I am inclined to feel that I am a failure."*

Strongly agree Agree Disagree Strongly disagree

3. *"I feel that I have a good number of qualities."*

Strongly agree Agree Disagree Strongly disagree

4. *"I am able to do most things as well as most people."*

Strongly agree Agree Disagree Strongly disagree

5. *"I feel I do not have much to be proud of."*

Strongly agree Agree Disagree Strongly disagree

6. *"I take a positive attitude toward myself."*

Strongly agree Agree Disagree Strongly disagree

7. *"On the whole I am satisfied with myself."*

Strongly agree Agree Disagree Strongly disagree

8. *"I wish I could have more respect of myself."*

Strongly agree Agree Disagree Strongly disagree

9. *"I certainly feel useless at times."*

Strongly agree Agree Disagree Strongly disagree

10. *"At times, I think I am no good at all."*

Strongly agree Agree Disagree Strongly disagree

Fenigstein & Venable's (1992) General Paranoia Scale

There are some statements below about certain feelings and beliefs that people usually have concerning themselves, others and certain situations. Your task is to choose how well each statement is applicable to you. Please note that all the information provided by you are strictly confidential.

Please circle the appropriate response

1. *"Someone has it in for me."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

2. *"I sometimes feel as if I'm being followed."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

3. *"I believe that I have often been punished without a cause."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

4. *"Some people have tried to steal my ideas and take credit for them."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

5. *“ My parents and my family find more fault with me than they should.”*

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

6. *“ No one really cares much what happens to you.”*

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

7. *“ I am sure I get a raw deal from life.”*

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

8. *“ Most people will use somewhat unfair means to gain profit or an advantage rather than lose it.”*

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

9. *“ I often wonder what hidden reason another person may have for doing something nice for you.”*

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

10. *"It is safer to trust no one."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

11. *"I have often felt that strangers were looking at me critically."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

12. *"Most people make friends because friends are likely to be useful to them."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

13. *"Someone has been trying to influence my mind."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

14. *"I am sure I have been talked about behind my back."*

1	2	3	4	5
not at all applicable to me	slightly applicable to me	somewhat applicable to me	applicable to me	extremely applicable to me

15. "Most people inwardly dislike putting themselves out to help other people."

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

16. "I tend to be on my guard with people who are somewhat more friendly than I expected."

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

17. "People have said insulting and unkind things about me."

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

18. "People often disappoint me."

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

19. "I am bothered by people outside, in cars, in stores, etc., watching me."

1	2	3	4	5
not at all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

20. *“ I have often found people jealous of my good ideas just because they had not thought of them first.”*

1	2	3	4	5
not all	slightly	somewhat	applicable	extremely
applicable to me	applicable to me	applicable to me	to me	applicable to me

Thank you very much for your co-operation!

Appendix II

Main tables for Study I (paranoia in a normal population: exploratory)

**Table 1. Percentages for the open-ended questions about beliefs in the QPFINP
(questions 2, 2a and 2b)**

Items	Categories					Total
	Unexpected events	Rej1	Rej>1	BG1	BG >1	
Item 32	37%	12%	24%	27%	0%	41
Item 32a)	0%	24%	34%	37%	5%	41
Item 32b)	2%	34%	27%	27%	5%	41

Table 2. Reliability scores for the open-ended questions in the QPFINP

	Questions 2, 2a, 2b	Questions 4a and 5	Questions 7 and 8
Cronbach's alpha	.96	.95	.97

Table 3. Means and Standard Deviations for the Fenigstein & Venable's General Paranoia Scale and the Rosenberg's Self-Esteem Scale

Questionnaires	Mean	SD
GPS (1992)	37.45	10.54
RSES (1965)	28.43	4.775

Table 4. Descriptive statistics for the Groups in the QPFINP

	NP		PG		AG	
	Mean	SD	Mean	SD	Mean	SD
Fenigstein & Venable's GPS	34.20	(9.9)	42.51	(9.7)	35.86	(10.1)

Table 5. Differences in scores in the GPS for the groups in the QPFINP

Questionnaires	F	Sig.
GPS x QPFINP	8.44*	0.00*

*p < 0.01

Table 6. Planned contrasts between the PG, NP and AG and their scores in the GPS

Groups	t (114)	p
PG versus NP	4.04	<0.01
PG versus AG	2.54	<0.05
NP versus AG	0.65	n.s.

Appendix III

Pilot study for Study I (paranoia in a normal population: exploratory)

Pilot study

In an initial attempt to code questions 2, 2a) and 2b) researchers analysed the descriptive data and devised several categories that they thought best described the data.

The categories for question 2, 2a) and 2b) included for example Injustice (feelings of victimisation, unfairness from one person to oneself), Exclusion (feeling rejected and put aside), Conspiracy (feeling of being a victim of actions performed by a group of people) (see table 1).

Table 1. Initial categories for questions 2, 2a) and 2b) included in the final version of the QPFINP

Question 2

1) doesn't know	2) Injustice	3) Exclusion	4) Unexpected events	5) Feeling different	6) Evaluation
Unsure	Feelings of being a victim of another person's actions	Feelings of being rejected by a group or by another person. Feeling of being left out	Events that are negative and usually out of the ordinary	Feelings of being different from others. For example in colour of skin/height/sex or social talents and abilities	Feelings of being scrutinised by others. For example when someone is being evaluated in a social situation. Those include worries about performance

Question 2a)

1) Injustice	2) Exclusion	3) Failure	4) Feeling different	5) Disliked by others	6) Conspiracy
Feelings of being a victim of another person's actions	Feelings of being rejected by a group or by another person. Feeling of being left out	Feelings of disappointment and resentment when not accomplishing a goal; not being able to succeed.	Feelings of being different from others. For example in colour of skin/height/sex or social talents and abilities	Feelings of being disliked, depreciated or even put down by others	Feelings of being a victim of other people's actions. This is a feeling that expresses concern that others are thwarting you.

Question 2b)

Categories	<i>Description</i>
1) Doesn't know	Unsure
2) Injustice	Feelings of being a victim of another person's actions
3) Exclusion	Feelings of being rejected by a group or by another person. Feeling of being left out
4) Conspiracy	Feelings of being a victim of other people's actions. This is a feeling that expresses concern that others are thwarting you.
5) Feeling different from others	Feelings of being different from others. For example in colour of skin/height/sex or social talents and abilities
6) Failure	Feelings of disappointment and resentment when not accomplishing a goal; or not being able to succeed.
7) Disliked by others	Feelings of being disliked and depreciated or even put down by others.
8) Envy of towards you	Feelings representing the view that other people are jealous of you. These people envy one's talents and accomplishments and so they will hurt you viciously.
9) Unexpected Events	Events that are negative and usually out of the ordinary.

However, those categories proved to be unhelpful in describing the descriptive data. When the answers of 15 people were analysed, researchers didn't agree much to what category they belonged to ($\alpha = .34$). This disagreement was due to:

(a) the elevated number of categories that made coding more likely to differ.

(b) the overlap between categories. For example, Exclusion shares a lot of similarities to the feelings presented in the category of Injustice. Indeed many participants felt that for example friends were being unfair to them by not inviting them or leaving them out because they didn't like them or because they saw them as being different. Those feelings of not being liked and being different are therefore part of feeling excluded, victimised and rejected.

In order to concede more reliability to categories and to improve agreement, new categories were devised to interpret the data on questions 2, 2a) and 2b). The same categories were maintained for the rest of the open-ended questions because they proved to be reliable (i.e. agreement between researchers was good as $\alpha = .95$ for question 5, $\alpha = .97$ for question 7 and 8, and $\alpha = .93$ for question 4a).

Table 2. Reliability scores for the initial categories in the QPFINP

	Question 5	Question 4a	Question 7 and 8
Conbach alpha	.95	.93	.97

Appendix IV

Tables and Figures for Study I (paranoia in a normal Population: exploratory)

Table 1. Final categories for questions 2, 2a) and 2b) included in the QPFINP

1) Unexpected events	2) Social and attachment	3) Blocked goals
Unexpected, negative and uncontrollable events	Feelings of rejection, being excluded, disliked by others, judged negatively and belief about being different from others.	Feelings of being thwarted, marked down and being overlooked for something. There is also the belief that someone is preventing one's success

Table 2. Coding Manual for the answers provided in questions 2, 2a) and 2b)

<i>Doesn't know</i>	<i>Unexpected Events</i>	<i>Rejection by one person (rej1)</i>	<i>Rejection by more than one person (rej>1)</i>	<i>Thwarting by one person (BG1)</i>	<i>Thwarting by more than one person</i>
1	2	3	4	5	6

Table 3. Coding Manual for answers provided in question 4a)

<i>Doesn't know</i>	<i>Cognitive shift (changes belief)</i>	<i>Rationalisation (provides a more elaborate explanation for the feelings)</i>	<i>Repression (attempt to ignore the belief and associated feeling)</i>	<i>No change</i>
1	2	3	4	5

Table 4. Coding Manual for answers provided in question 5

<i>Doesn't know</i>	<i>Injustice</i> e.g. feeling victim of someone's actions	<i>Evaluation</i> e.g. marked work by teacher	<i>Stress</i> e.g. lots of tasks to do	<i>Lack of control</i> e.g. feelings of being in a catastrophe	<i>Resentment</i> e.g. feeling embittered about someone	<i>Unexpected events</i> e.g. negative events that are not expected	<i>Exclusion</i> e.g. being rejected by a group of friends	<i>N</i> <i>o</i> <i>n</i> <i>e</i>
1	2	3	4	5	6	7	8	9

Table 5. Coding Manual for answers provided in questions 7 and 8

<i>Doesn't know</i>	<i>Nothing</i>	<i>Confrontation</i> (e.g. talk to the person one thinks tried to harm)	<i>Rationalisation</i> (e.g. try to elaborate a "rational explanation" for the belief)	<i>Avoidance</i> (e.g. try not to see the person he or she thoughts is harming her or him)	<i>Catharsis</i> (e.g. cry, shout and other behaviours that expel the feelings locked inside)
1	2	3	4	5	6

Table 6. Coding Manual for answers provided to questions 1, 4, 6, 10, 12 and 14

No	Yes
1	2

Fig. 1 Distribution of scores in Fenigstein & Venable's General Paranoia Scale (20- 100)

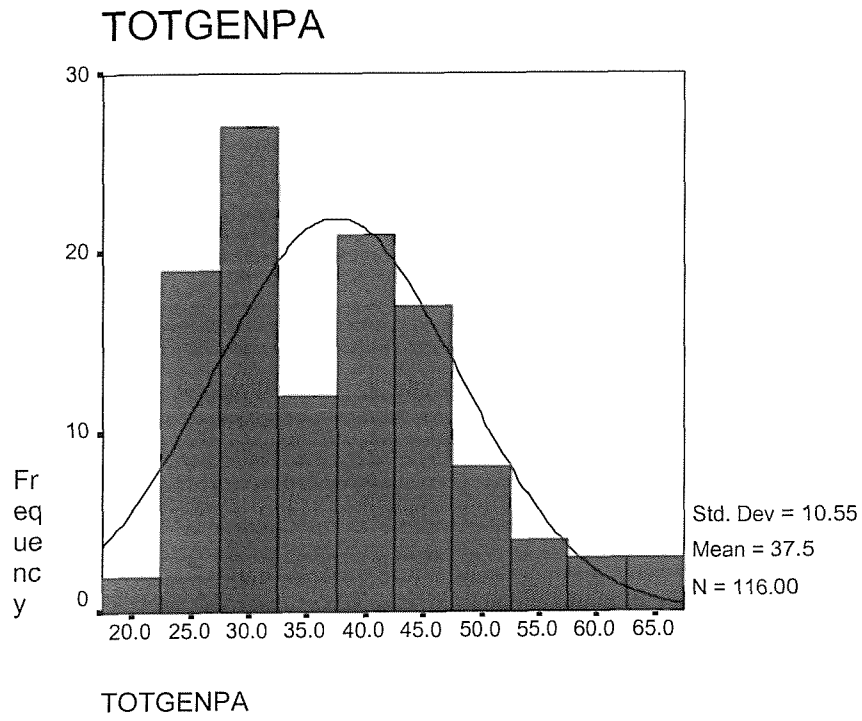


Fig. 2 Mean differences between the PG versus the NP versus the AG in Fenigstein & Venable's General Paranoia Scale

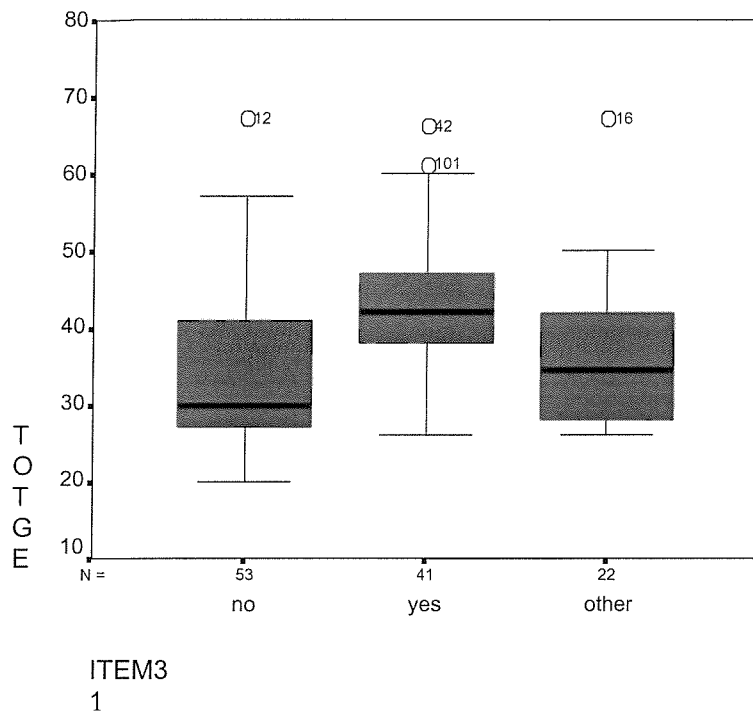


Fig. 3 Distribution of scores for item 43 in the QPFINP measuring “bad me” versus “poor me” paranoia

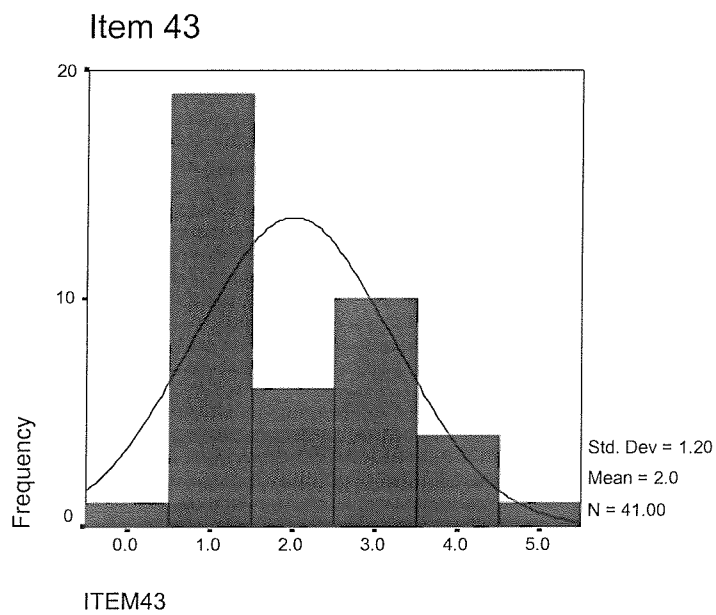


Table 7. Mean and Standard Deviation Scores for the items with a Likert - scale in the QPFINP

<i>Items</i>	<i>Mean</i>	<i>SD</i>
Item 33	3.5854	0.9480
Item 39	3.2683	1.0494
Item 41	2.9024	1.2001
Item 43	2.000	1.2042

Table 8. Percentages for closed answer items in the QPFINP

Items	Percentages		Total
	Yes	No	
Item 31	54%*	46%	116
Item 34	49%	51%	41
Item 36	24%	76%	41
Item 40	54%	46%	41
Item 42	73%	24%	41
Item 44	56%	41%	41

* Note that from those 54% that said yes to a paranoid feeling, 35% were classified as reporting a paranoid feeling whereas the other 19% were classified as not reporting paranoia but some other phenomenon.

Table 9. Percentages for question 4a) in the QPFINP

Item	Categories				Total
	Cognitive Shift	Rationalisation	Repression	No change	
Item 34a)	37%	15%	0%	12%	41

Table 10. Percentages for question 5 in the QPFINP

Item	Categories									Total
	Doesn't know	Injustice	Evaluation	Stress	Lack of control	Resentment	Unexpected	Exclusion	None	
Item 35	2%	20%	27%	7%	5%	2%	2%	22%	10%	41

Table 11. Percentages for the questions about behaviour (items 37 and 38) in the QPFINP

Item	Categories					Total
	Nothing	Confrontation	Rationalisation	Avoidance	Catharsis	
Item 37	10%	44%	5%	20%	5%	41
Item 38	20%	8%	2%	8%	5%	41

Table 12. Cronbach's alphas for the QPFINP (2000), Fenigstein & Vanable's General Paranoia Scale and Rosenberg's (1965) Self-Esteem Scale

	<i>Fenigstein & Vanable's General Paranoia Scale</i>	<i>Rosenberg's Self-Esteem Scale</i>
Cronbach's α	0.8908	-0.6084

Table 13. Tukey's test on multiple comparisons between the PG versus the NP versus the AG group

Levels (Item 31 in the QPFINP)	F	P value
Yes x No	8.30	0.000**
No x Yes	-.830	0.000**
Other x Yes	-6.64	0.034*
Yes x Other	6.64	0.034*
No x Other	1.65	n.s.

Note that Yes (PG), No (NP) and Other (AG).

** p < 0.01

* p < 0.05

Appendix V
Screening measure for Study II: Negative interpretation bias and attentional biases in paranoia

University of Southampton

Room 4067
Department of Psychology
Phone: 24645
Email: bcdl@soton.ac.uk

My name is Barbara Lopes I am a PhD Student in the department of Psychology at the University of Southampton. This study is divided in two parts: the first one simply asks you to fill in one short questionnaire on the back of this page. The second part is an experiment with various tasks (e.g. an easy computer task, writing down a short list of words and fill in some questionnaires) that in total will take less than an hour to complete. You don't have to participate in the second part of the study that will take place in a few weeks time.

Screening questionnaire

Please fill in

Name _____

E-mail _____

Age: _____ Gender: M / F

Is English your first Language? Yes / No

Contact address _____

Phone number _____



THANK YOU FOR YOUR HELP!

How applicable is each statement to you? **Please circle the appropriate response.**

	Not at all	slightly	somewhat	applicable	Extremely
1. Someone has it in for me.	1	2	3	4	5
2. I sometimes feel as if I am being followed.	1	2	3	4	5
3. I believe that I have often been punished without a cause.	1	2	3	4	5
4. Some people have tried to steal my ideas and take credit for them.	1	2	3	4	5
5. My parents and family find more fault than they should.	1	2	3	4	5
6. No one really cares much what happens to you.	1	2	3	4	5
7. I am sure I get a raw deal from life.	1	2	3	4	5
8. Most people will use somewhat unfair means to gain profit or and advantage rather than lose it.	1	2	3	4	5
9. I often wonder what hidden reason another person may have for doing something nice for you.	1	2	3	4	5
10. It is safer to trust no one.	1	2	3	4	5
11. I have often felt that strangers were looking at me critically.	1	2	3	4	5
12. Most people make friends because friends are likely to be useful to them.	1	2	3	4	5
13. Someone has been trying to influence my mind.	1	2	3	4	5
14. I am sure I am being talked about behind my back.	1	2	3	4	5
15. Most people inwardly dislike putting themselves out to help other people.	1	2	3	4	5
16: I tend to be on my guard with people who are somewhat more friendly than I expected.	1	2	3	4	5
17: People have said insulting and unkind things about me.	1	2	3	4	5
18. People often disappoint me.	1	2	3	4	5
19. I am bothered by people outside, in cars, in stores, etc., watching me.	1	2	3	4	5
20. I have often found people jealous of my good ideas just because they had not thought of them first.	1	2	3	4	5
.....					

Appendix VI

Participant sheet, study's procedure and consent form for Study II Participant Sheet

Name: _____ Number: _____

Date: ____/____/____ Gender: M / F

Screening Score _____ Group: _____

Do you wear glasses? Yes / No

Have you got them with you? Yes / No

Handiness – Which hand do you normally use for writing? R / L

1. Consent Form

2. *Instructions: If an arrow points up push the top button as quickly as possible. If the arrow points down, press the bottom button as quickly as possible. Try not to make mistakes.*

3. Inform participants before starting that they can leave the experiment if they decide to leave.

4. **Run p1 or p2**

5. After finishing experiment, ask participants to do the **Homophone task**

Instructions: You will hear several words that are spoken to you from the tape recorder. A word will be presented followed by an interval where you can write down that word. After you finished writing the word you will hear the next word and again should write it down. This procedure continues until the researcher says the task is over.

Questionnaires

Scores

6. STAI State _____

7. STAI Trait _____

8. F Q _____

9. Fear of Negative Evaluations _____

10. Questionnaire on Paranoia _____

11. Self-esteem Scale _____

12. Debriefing and thanking the participation

13. Copy participant's data into a:

Study's procedure

- ◆ Welcome participant to the study (do this inside the testing room): *“Hello, thanks for coming. This is the second part of the study on thinking styles, spelling and visual-spatial attention. You have already completed the first part where you were asked to fill in a screening questionnaire. In the second part, I will ask you to do three tasks. These include doing a simple experiment that will take around 10 minutes to complete, then you are asked to write down words that are spoken to you from a tape recorder and finally you will also be asked to fill in three small questionnaires.” I remind you that you can leave the room at any time without any consequences to you. You are not obliged to take part in the study although your help will be much appreciated!”*
- ◆ First task: *“ If you have any questions about the tasks, please do not hesitate to ask me. Sit down the participant in front of the computer. “ I will give you a consent form that asks you permission to participate in this study. Could you please read it and sign it for me?” Thank you.*

Computer is already switched on and ready to run. *“ Now, in this experiment you will see pairs of faces and two different arrows (one pointing up and the other pointing down) being flashed in the computer screen. What I ask you to do is to press as quickly as possible the top button whenever an arrow pointing up appears on the screen and to press the lower button whenever an arrow pointing down appears on the screen. (at this time show the participant the response buttons). So Top button for arrow pointing up versus Bottom button for arrow pointing down. Please press the correct button as quickly as possible. Try not to make mistakes.*

Is it clear what you have to do? Do you have any questions at this stage?

I will go through with you the practice session just to make sure you understood what you are asked to do. (run practice session).

“ If there are no questions so we can proceed to the experiment. The instructions are written in the computer screen, so please read them carefully, make sure you understand them and start the experiment.”

- ◆ *Sit quietly inside the cubicle behind the participant, out of her/his view.*

- ◆ Spelling task. *“ you have finished the experiment so now you will hear several words that are going to be spoken to you from a tape recorder. What I am going to ask you to do is simply to write down in this piece of paper each word after being spoken. You will have a few seconds to write down the word and then you will hear another word and write it down and so on. This task will take around 8 minutes to complete. If you have any questions about the procedure please ask me, if not let’s start.”*
- ◆ Questionnaires. *“Finally, you only have to fill in 3 questionnaires that are not too long. They are easy to fill in, however if you have any questions regarding them please ask me. After you finished please tell me.”*
- ◆ Debriefing. Hand in the debriefing summary and ask them to read it. Thank participant once again for their help.
- ◆ Save participant’s data in a:

Study on thinking styles spelling and visual-spatial abilities: stage II

Information Sheet

I am Barbara Lopes, a PhD student at the department of Psychology, University of Southampton. I am requesting your participation in a study regarding different thinking styles, spelling and visual-spatial attention. You will be asked to do two experimental tasks and in the end to fill in three very simple questionnaires. One task is simply spelling words that are presented on a tape recorder. The other asks you to sit in front of a computer and to identify two stimuli that are presented alternately to you as quickly as possible. This study will take roughly 40 minutes to complete. Personal information will not be released to or viewed by any other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics. Your participation is voluntary and you may withdraw your participation at any time. A debriefing statement will be supplied to you at the end of the study. If you have any questions please ask them now or contact me:

Barbara Lopes
Room 4067, Department of
Psychology, SO 17 1BJ
Southampton.
Phone: 24645, or 02380594645
e-mail: bcdl@soton.ac.uk

Sincerely,

Statement of consent

I _____ have read the above informed consent form. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies. A copy of this consent letter will be given to me.

(Circle Yes or No)

I give consent to participate in the above study

Yes

No

Signature _____

Date _____

I understand that if I have any questions about my rights as a participant in this research, or if I feel I have been placed at risk, I can contact the Chair Ethics Committee, Department of Psychology, university of Southampton, Southampton, SO17 1BJ. Phone: (02380) 59 2612.

Appendix VII

Spelling task

Please write down the words as you hear them according to their presentation order.

Practice

- | | |
|----------|-----------|
| 1. _____ | 7. _____ |
| 2. _____ | 8. _____ |
| 3. _____ | 9. _____ |
| 4. _____ | 10. _____ |
| 5. _____ | |
| 6. _____ | |

Task

- | | | |
|-----------|-----------|-----------|
| 1. _____ | 22. _____ | 43. _____ |
| 2. _____ | 23. _____ | 44. _____ |
| 3. _____ | 24. _____ | 45. _____ |
| 4. _____ | 25. _____ | 46. _____ |
| 5. _____ | 26. _____ | 47. _____ |
| 6. _____ | 27. _____ | 48. _____ |
| 7. _____ | 28. _____ | 49. _____ |
| 8. _____ | 29. _____ | 50. _____ |
| 9. _____ | 30. _____ | 51. _____ |
| 10. _____ | 31. _____ | 52. _____ |
| 11. _____ | 32. _____ | 53. _____ |
| 12. _____ | 33. _____ | 54. _____ |
| 13. _____ | 34. _____ | 55. _____ |
| 14. _____ | 35. _____ | 56. _____ |
| 15. _____ | 36. _____ | |
| 16. _____ | 37. _____ | |
| 17. _____ | 38. _____ | |
| 18. _____ | 39. _____ | |
| 19. _____ | 40. _____ | |
| 20. _____ | 41. _____ | |
| 21. _____ | 42. _____ | |

Appendix VIII
Questionnaires for Study II
SELF-EVALUATION QUESTIONNAIRE
STAI – STATE ANXIETY

Name: _____ Date: _____

Age: _____ Gender: M _____ F _____

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then tick the answer to the right of the statement to indicate how you feel right now, that is, *at this moment*. There are no right or wrong answers do not spend too much time on any one statement but give an answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm				
2. I feel secure				
3. I am tense				
4. I feel strained				
5. I feel at ease				
6. I feel upset				
7. I am presently worrying over possible misfortunes				
8. I feel satisfied				
9. I feel frightened				
10. I feel comfortable				
11. I feel self-confident				
12. I feel nervous				
13. I am jittery				
14. I feel indecisive				
15. I am relaxed				
16. I feel content				
17. I am worried				
18. I feel confused				
19. I feel steady				
20. I feel pleasant				

SELF-EVALUATION QUESTIONNAIRE

STAI – TRAIT ANXIETY

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then tick the answer to the right of the statement to indicate how you *generally feel*. There are no right or wrong answers do not spend too much time on any one statement but give an answer which seems to describe how you generally feel.

	Almost never	Sometimes	Often	Almost always
21. I feel pleasant				
22. I feel nervous and restless				
23. I feel satisfied with myself				
24. I wish I could be as happy as others seem to be				
25. I feel like a failure				
26. I feel rested				
27. I feel “calm, cool and collected”				
28. I feel that difficulties are piling up so that I cannot overcome them				
29. I worry too much over something that really doesn't matter				
30. I am happy				
31. I have disturbing thoughts				
32. I lack self-confidence				
33. I feel secure				
34. I make decisions easily				
35. I feel inadequate				
36. I am content				
37. Some unimportant thought runs through my mind and bothers me				
38. I take disappointments so keenly that I can't put them out of my mind				
39. I am a steady person				
40. I get in a state of tension or turmoil as I think over my recent concerns and interests				

FNE

Name: _____

Date: _____

	True	False
1. I rarely worry about seeming foolish to others		
2. I worry about what people think of me even when I know it doesn't make any difference		
3. I become tense and jittery if I know someone is sizing me up		
4. I am unconcerned even if I know people are making an unfavourable impression of me		
5. I feel very upset when I commit a social error		
6. The opinions that important people have of me cause me little concern		
7. I am often afraid that I may look ridiculous or make a fool of myself		
8. I react very little when other people disapprove of me		
9. I am frequently afraid of other people noticing my shortcomings		
10. The disapproval of others would have little effect on me		
11. If someone is evaluating me I tend to expect the worst		
12. I rarely worry about what kind of impression I am making on someone		
13. I am afraid that others will not approve of me		
14. I am afraid that people will find fault in me		
15. Other people's opinions of me do not bother me		
16. I am not necessarily upset if I do not please somebody		
17. When I am talking to someone, I worry about what they may be thinking about me		
18. I feel that I can't help making social errors sometime, so why worry about it		
19. I am usually worried about what kind of impression I make		
20. I worry a lot about what my superiors think of me		
21. If I know someone is judging me, it has little effect on me		
22. I worry that others will think I am not worthwhile		
23. I worry very little about what others may think of me		
24. Sometimes I think I am too concerned with what other people think of me		
25. I often worry that I will say or do the wrong things		
26. I am often indifferent to the opinions others have of me		
27. I am usually confident that others will have a favourable impression of me		
28. I often worry that people who are important to me won't think very much of me		
29. I brood about the opinions my friends have about me		
30. I become tense and jittery if I know I am being judged by my superiors		

Appendix IX

Debriefing Statement

The aim of this research was to explore the characteristics of paranoid cognition in a normal population. Certain individuals sometimes feel intentionally harmed by others. They believe that others were being malicious and hurt them. These beliefs are normal and unstable fleeting with time. The main hypothesis advocated therefore that those individuals when presented with ambiguous information would prefer to attribute a threatening meaning over and above a neutral one.

It is expected that the group of individuals that score high on cognitions of being mistreated by others would significantly differ from a group that scores low on the same measure when interpreting ambiguous information and allocating attention in the visual field. The ones that score high not only would attribute a more threatening meaning to ambiguous information when compared to the ones that score low but also they would attend preferentially to visual threat stimuli over happy and neutral.

Your data will help to understand the characteristics of paranoia and the mechanisms underlying paranoid cognition.

Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. If you want a more elaborated summary later on about the study, its aims and results and if you have any further questions please contact me:

Barbara Lopes at 24645 or by e-mail bcdl@soton.ac.uk

Thank you very much for your participation in this research



Signature _____

Date _____

Appendix X

Tables for Study II: Negative interpretation bias and attentional biases in paranoia

Tables

Table 1. Characteristics of GPS groups

	High Paranoia		Low Paranoia		t (40)	p
	Mean	(SD)	Mean	(SD)		
Age	19.0	(0.0)	19.1	(0.4)	1.00	n.s.
GPS at time 1	45.4	(5.2)	27.3	(1.0)	15.42	<0.01
GPS at time 2	44.6	(8.3)	29.8	(7.1)	6.19	<0.01
STAI Trait anxiety	52.4	(8.9)	41.3	(9.7)	3.83	<0.01
STAI State anxiety	44.5	(7.8)	36.1	(10.9)	2.86	<0.01
Fear of Negative Evaluation	19.2	(8.3)	17.1	(7.8)	0.81	n.s.

Notes: GPS at time 1 (i.e. Fenigstein & Venable's General Paranoia Scale at screening), GPS at time 2 (i.e. Fenigstein & Venable's General Paranoia Scale at testing), STAI (State Trait Anxiety Inventory).

Table 2. Pearson's Correlations

	GPS at time1	GPS at time2	STAI Trait	STAI State	FNE
GPS at time1	-----	.78**	.54**	.39**	.15
GPS at time2	.78**	-----	.55**	.38**	.27
STAI Trait	.54**	.55**	-----	.68**	.41**
STAI State	.39**	.38**	.68**	-----	.26
FNE	.15	.27	.26	.41**	-----

** p <0.01

Notes: GPS at time 1 (Fenigstein & Venable's General Paranoia Scale at time1), GPS at time 2 (Fenigstein & Venable's General Paranoia Scale at time2), STAI (State Trait Anxiety Inventory), FNE (Fear of Negative Evaluations).

Table 3. Mean Response Latencies to Probes (in msec)

Face type	Exposure duration	Face location	Probe location	High Paranoia		Low Paranoia	
				Mean	SD	Mean	SD
<i>Threat</i>	500 msec	Left	Left	550.79	65.19	559.61	54.64
		Left	Right	562.69	70.07	587.67	54.17
		Right	Left	544.10	75.95	557.62	49.80
		Right	Right	552.98	75.10	568.54	46.72
	1250 msec	Left	Left	525.0	69.37	546.96	63.04
		Left	Right	531.99	52.04	558.40	52.25
		Right	Left	536.96	63.07	547.99	69.08
		Right	Right	528.23	60.21	567.66	61.41
<i>Happy</i>	500 msec	Left	Left	545.51	73.42	545.65	59.07
		Left	Right	548.30	65.62	582.16	55.71
		Right	Left	531.45	54.34	576.38	64.69
		Right	Right	541.94	54.46	571.99	57.24
	1250 msec	Left	Left	540.62	61.02	552.96	68.82
		Left	Right	529.31	64.21	552.32	60.41
		Right	Left	527.67	66.23	543.65	52.38
		Right	Right	525.61	63.81	552.34	49.05

Table 3a) Mean Bias Scores (in msec)

Face Type	Exposure Duration	High Paranoia		Low Paranoia	
		Mean	(SD)	Mean	(SD)
Threat	500msec	1.5	(28.4)	8.6	(31.2)
	1250msec	8.4	(28.2)	-4.1	(34.7)
Happy	500msec	-3.9	(24.9)	20.4	(34.7)
	1250msec	-4.6	(35.4)	-4.7	(34.5)

Table 4. Characteristics of the State Anxiety Groups

	High State Anxiety		Low State Anxiety		t (40)	p
	Mean	SD	Mean	SD		
Age	19.0	(0.0)	19.1	(0.4)	0.07	n.s.
State Anxiety	48.00	(7.31)	31.95	(5.48)	7.98	<0.01
Trait Anxiety	53.04	(7.06)	40.10	(10.25)	4.80	<0.01
GPS at time1	40.00	(9.41)	32.50	(9.07)	2.62	<0.05
GPS at time2	41.81	(10.32)	32.20	(8.95)	3.20	<0.05
FNE	20.13	(7.13)	16.10	(8.76)	1.64	n.s.

Table 5. Mean bias scores (in msec) for the State Anxiety groups

Face Type	Exposure Duration	High State Anxiety		Low State Anxiety	
		Mean	SD	Mean	SD
Threat	500 msec	13.91	(28.45)	-4.68	(28.53)
	1250 msec	3.50	(25.43)	0.59	(38.38)
Happy	500 msec	-4.28	(28.82)	22.12	(30.70)
	1250 msec	2.14	(34.16)	-12.12	(34.20)

Table 6. Characteristics of the homophone bias for GPS and State Anxiety Groups

Table 6a) Homophone bias for Paranoia for State anxiety

Table 6 b) Homophones bias

	High Paranoia		Low Paranoia		t (42)	p	High State anxiety		Low State anxiety		t (42)	p
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Hombias	69	12.2	64	10.7	1.5	n.s.	67	12.65	65	10.74	0.48	n.s.

Table 7. Correlations between the Homophone Bias score and the questionnaires' scores

	Homophone Bias	Sig.
GPS at time 1	.27	0.08
GPS at time 2	.15	0.33
STAI State Anxiety	.11	0.48
STAI Trait Anxiety	.25	0.09
FNE	.21	0.17

Table 8. Words Presented to Participants

Practice	Neutral	Threat	Homophone
Pencil	Month	Harm	Die/Dye
Shoe	Blanket	Inferior	Slay/Sleigh
Telephone	Survey	Insecure	Foul/Fowl
Plant	Deed	Infirm	Mourning/Morning
Fabric	Mobile	Scorned	Groan/Grown
Coffee	Signet	Inquest	Liar/Lyre
Salt	Flannel	Ignored	Weak/Week
Window	Rake	Hearse	Tease/Teas
Bird	Regard	Foolish	Bury/Berry
Caravan	Poodle	Opposed	Guilt/Gilt
	Avenue	Spied	Stalk/Stork
	Playmate	Persecuted	Pain/Pane
	Spade	Followed	Bore/Boar
	Clog	Hazard	Steal/Steel
	Radish		
	Putty		
	Stag		
	Beads		
	Melon		
	Rabbit		
	Tadpole		
	Curve		
	Skater		
	Willow		
	Petal		
	Mint		
	Silver		
	Trades		

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