Bachelor Thesis

# Life Stories and Paranoia

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Samenvatting

**Achtergrond** Huidige onderzoeken betreffende paranoia zijn vooral kwantitatief van aard. Verschillende studies hebben aangetoond dat paranoïde gedachten verschillen qua inhoud en ernst en dat sub vormen geïdentificeerd kunnen worden. Diverse theorieën over het ontstaan zijn bekend, maar het is niet duidelijk welke factoren precies van invloed zijn op de ontwikkeling van paranoia.

**Doelen** Het doel van deze studie is het zicht krijgen op paranoïde gedachten op basis van een combinatie van kwalitatieve en kwantitatieve onderzoeksmethoden. De kwalitatieve bevindingen zullen in verband worden gebracht met kwantitatieve metingen. Bovendien zal gekeken worden of het mogelijk is levensgebeurtenissen te identificeren die met de ontwikkeling van paranoia in verband zouden kunnen staan.

**Methode** Niet-klinische respondenten werden door middel van de paranoia schaal op paranoïde gedachten gescreend. Vijf andere schalen werden in de online-survey gebruikt om depressie, sociale angst, attributie stijl, zelfwaardering en de Big-five persoonlijkheidseigenschappen te meten. Op basis van correlaties en lineaire regressie werden relaties tussen de verschillende constructen gemeten. Een cluster analyse werd uitgevoerd om sub vormen te identificeren. Levensverhaalinterviews werden afgenomen om kwalitatieve inzichten te verkrijgen.

**Resultaten** Paranoia staat in verband met verschillende constructen. De sterkste associaties werden gevonden tussen paranoia, depressie en sociale angst. Twee sub vormen werden geïdentificeerd. Met toenemende scores op paranoia wordt minder communion gerapporteerd. De verhouding negatieve/positieve levensgebeurtenissen en de agency/communion ratio nemen toe naar mate de scores op paranoia oplopen.

**Conclusie** Het was niet mogelijk om specifieke levensgebeurtenissen te identificeren in deze studie. Nader onderzoek naar de relatie tussen persoonlijkheidskenmerken en paranoia, culturele verschillen en de stabiliteit van sub vormen in niet-klinische steekproeven is vereist. Ook zou in grotere steekproeven verder gekeken moeten worden naar levensgebeurtenissen die in verband zouden kunnen staan met de ontwikkeling van paranoia.

Abstract

**Background** Previous studies regarding paranoia are mostly quantitative. Paranoid ideation varies in severity and content and sub forms of paranoia can be derived. Different theories about the development exist, but it is not possible to identify specific causes of paranoia.

**Aims** The goal of this study is to assess paranoid thoughts and feelings qualitatively and to link these findings to quantitative measures. Furthermore, we want to investigate if it is possible to identify life events which might contribute to paranoia.

**Method** Non-clinical subjects were screened on paranoid thoughts by use of the paranoia scale. Five other scales were used in an online-survey to measure depression, social anxiety, attribution style, self-esteem and the Big-five personality characteristics. A correlation analysis and a linear regression analysis were used to identify associations between the constructs. A cluster analysis was used to derive sub forms of paranoia. Qualitative insights were gained with the use of life story interviews.

**Results** Paranoia is associated with different constructs. The strongest associations were found between paranoia, depression and social anxiety. Two sub types of paranoia could be derived. With increasing scores on paranoia, less communion themes and more negative life events in relation to positive live events are reported. Also, the agency/communion ratio increases with higher scores on paranoia.

**Conclusions** It was not possible to identify specific life events which might contribute to paranoia. More research is needed on the relation between paranoia and the Big-five personality characteristics, cultural differences, the stability of sub types in non-clinical samples and life events that might contribute to paranoid ways of thinking.

## Introduction

Depression and anxiety are widely known psychological issues. Thoughts of paranoid ideation are almost as common (van Os & Verdoux, 2003), what is widely unknown. In this study, we focus on paranoid thoughts in a non-clinical sample. Earlier research regarding paranoia is mostly quantitative. Little is known about how people having paranoid thoughts live their lives, how they think about themselves and how they see their lives. We want to examine if there are life events which might be associated with the development of paranoid thoughts. Furthermore, we want to link insights, gained qualitatively, to quantitative measures.

In the first half of the 19$^{th}$ century the term "paranoia" was used to describe persecutions and delusions (Bentall & Taylor, 2006). Today, paranoia is commonly defined as a psychotic disorder characterized by fear or suspicion of other people even when there is no evidence or reason for this (Oxford University Press, 2007). These thoughts and feelings are often vehemently vindicated by apparent logic and reason. People suffering paranoia are scared, sensitive and they project their own feelings on other people (Bentall & Taylor, 2006). Other people's behavior is mentioned threatening and intentional, even friendly actions. According to the American Psychiatric Association (2000), a pattern of suspiciousness about, and distrust of other people when there is no good reason for either, along with minimal four of the seven following symptoms must be present in early adulthood to diagnose a paranoid personality disorder (PDD):

- "The unfounded suspicion that people want to deceive, exploit or harm the patient.
- The pervasive belief that others are not worthy of trust or that they are not inclined to or capable of offering loyalty.
- A fear that others will use information against the patient with the intention of harming him or her. This fear is demonstrated by a reluctance to share even harmless personal information with others.
- The interpretation of others' innocent remarks as insulting or demeaning; or the interpretation of neutral events as presenting or conveying a threat.
- A strong tendency not to forgive real or imagined slights and insults. People with PPD nurture grudges for a long time.
- An angry and aggressive response in reply to imagined attacks by others. The counterattack for a perceived insult is often rapid.

- Suspicions in the absence of any real evidence [...]" (American Psychiatric Association [APA], 2000, pp. 693-694).

Different theories about the development of paranoia exist, but it is not possible to identify specific causes. First, family factors might be of influence. PPD is reported more often in families in which other psychotic disorders, like schizophrenia or delusional disorders are present (Webb & Levinson, 1993). The question remains if the occurrence of paranoid thoughts or the paranoid personality disorder is determined genetically or behaviorally. According to Lake (2008) it might be possible that paranoid ways of thinking can be learned on the basis of interpersonal, not only family, factors. Paranoid ways of thinking might be a coping strategy to come along with unpredictable outbursts of anger and rage of the parents or people children have direct contact with. Because of the unexpectedness of the parent's behavior paranoid ways of thinking become internalized and part of the personality as the child gets older (Lake, 2008). This is in accordance with earlier findings of Mirowsky and Ross (1983). They argue that powerlessness and victimization play an important role in developing paranoid ways of thinking. Twin studies of monozygotic and dizygotic twins implicate that genetic factors may also play a role in developing the disorder (Webb & Levinson, 1993, Torgersen et al., 2000). Estimates of the degree of genetic contribution to the development of childhood personality disorders are similar to estimates of the genetic contribution to adult versions of the disorders. For the paranoid personality disorder an estimate of 0.5 was found (Coolidge, Thede & Lang, 2001). According to Mirowsky and Ross (1983), the organic brain syndrome might be another cause. In contrast, Bentall and Taylor (2006) argue that the paranoid personality disorder is not associated with a neuropsychological abnormality.

Prevention of PDD is almost not possible since it is not really known which factors contribute to the development of the disorder. Much more, it is not possible to determine the number of people suffering paranoia exactly. These people avoid voluntary contact with mental health workers. According to The American Psychiatric Association (2000), about 0.5% to 2.5% of the United States population is suffering PDD. It is likely that it concerns a much higher percentage of the population, according to symptoms like extreme mistrust and suspiciousness. PDD appears to be more common in men than in woman (APA, 2000). In most of the cases, PDD is a chronic, lifelong condition. That means that a lot of patients suffer the major symptoms throughout their lives. Therapy of PDD can be difficult, because of the extreme mistrust of the clients. Most people

suffering paranoia are not seeking help on their own, most often relatives are searching for help. The most important goal of therapy might be to control paranoid thoughts and feelings and to try to learn and experience what it means to trust someone. Sometimes medication is used to treat related symptoms as anxiety. In scope of the differential diagnosis, psychologists have to make sure that long term usage of amphetamines, drugs or medications can be excluded (APA, 2000). Use of stimulants which causes an abnormal dopamine transport (e.g. cocaine) can lead to paranoid thoughts (Galernter, Kranzler, Satel & Rao, 1994). Also, PDD cannot be diagnosed if a person has symptoms of schizophrenia, hallucinations, a formal thought disorder or delusions (APA, 2000).

According to Bentall and Taylor (2006), paranoia is a dimensional phenomenon. There is no clear border between normal and abnormal behavior. Paranoid thoughts vary in severity and content. This implicates that objective measures of paranoia are not possible.

According to Trower and Chadwick (1995) there are two forms of paranoia: poor me and bad me paranoia. Poor me's tend to see themselves as victims and they try to blame others. Friendly and helpful actions are mentioned mendacious and hostile. In contrast, bad me's always blame themselves and have sustained feelings of guilt. Poor me behavior do not only show people suffering paranoia. Also, people who act passive aggressively or distrustful persons show some kinds of poor me behavior (Trower & Chadwick, 1995).

Melo, Taylor and Bentall (2006) asked the question if poor me and bad me paranoia are states or traits. A state is relatively unstable and can change according to different situations. A trait is relatively stable over a long period of time. The authors argued that poor me and bad me paranoia are different and unstable phases of paranoia. Therefore, it may be possible that poor me and bad me paranoia are states of a paranoid period or PDD. Bad me paranoia is associated with high scores on depression. People suffering bad me paranoia remembered more failure events than people suffering poor me paranoia or control participants (Melo, Taylor & Bentall, 2006). In contrast, poor me's remembered more situations losing control than bad me or control subjects.

According to Fornells-Ambrojo en Garety (2005) poor me's scored significantly lower on depression than bad me patients, but significantly higher than controls. People suffering poor me paranoia showed higher scores on self-esteem than bad me participants. It may be possible that depression is associated with the development of bad me paranoia, later in the course of a paranoid period or PDD.

Kinderman and Bentall (1996) reported a positive correlation between paranoia and the personalizing bias in a non-clinical sample. That means that people suffering paranoia are inclined to blame other people for negative events rather than the own person or the situation (Langdon, Corner, McLaren, Ward & Coltheart, 2005).

Combs, Penn, Chadwick, Trower, Michael and Basso (2007) did research on subtypes of paranoia in a non-clinical sample of college students. Students were screened on paranoid thoughts with use of the paranoia scale. 15.8 % of the subjects showed elevated scores on this measure (Combs et al., 2007). Scores on depression, self-esteem, social anxiety and attribution style were assessed (Combs et al., 2007). The authors have found significant positive correlations between paranoia and depression and social anxiety. Self-esteem was negatively related to paranoia. Combs et al. (2007) reported that paranoia is a continuous phenomenon and different subtypes can also be derived in non-clinical samples. Three subtypes of paranoia were identified. The first subtype showed high scores on anxiety and depression and low self-esteem. The second subtype showed high self-esteem, low depression and moderate anxiety and the third subtype was a neutral one, showing no elevations. The authors mentioned that it might be essential to differentiate between the subtypes of paranoia and speculated that the first two subtypes might represent Trower and Chadwick's (1995) bad me and poor me forms of paranoia. Furthermore, they argue that non-pathological test scores later might lead to the development of a paranoid personality disorder (Combs et al., 2007).

The studies mentioned above used quantitative measures. The present study is based on the study of Combs et al. (2007), but we take more aspects into account and combine quantitative and qualitative research methods. Personality characteristics will be assessed in addition to measures of depression, social anxiety, self-esteem and attribution style.

As qualitative method, life story interviews, an interview procedure developed by Dan P. McAdams (2001), will be used. Life stories are representations of a person's identity. Different aspects of a person's life might be associated with the development of paranoia. We try to identify such life events and to gain an understanding of the thoughts and feelings of persons scoring high on paranoia. McAdams differentiated between two motivational dispositions: "agency" and "communion"; and two plots: "redemption" and "contamination" (Mc Adams, 2001). Agency describes the existence of an organism as an individual, with a need for achievement and power. The self stands central with properties as self-protection, self-assertion and self-expansion. Aloneness, isolation and alienation

are characteristic of this motivational disposition (Bakan, 1966). Communion describes the existence of an organism as part of a larger system. Idealistic motives, agreeableness, openness, belief, values, contact, friendship, love, intimacy and union play important roles in communion (McAdams et al., 2006). The two plots, redemption and contamination, describe narrative forms that appear throughout different scenes in a person's live story. In a redemption sequence a negative or distressing event leads to an emotionally positive outcome. The primal negative state is "redeemed" by the positive one that follows it (Foley Center for the Study of Lives, 1999). In contrast, in a contamination sequence a positive event leads to a negative outcome. The initial positive state is overwhelmed, destroyed or erased by the negative event which is following the positive one (Foley Center for the Study of Lives, 1998). According to McAdams (2001), contamination sequences and depression are positively associated.

According to the studies mentioned above, we have had the following expectations:

- Subjects scoring high on paranoia will also show high scores on depression (Melo, Taylor & Bentall, 2006; Fornells-Ambrojo & Garety, 2005; Combs et al., 2007).
- Participants scoring high on paranoia will also score high on social anxiety (Combs et al., 2007).
- Respondents scoring high on paranoia will have lower scores on self-esteem than normal scoring subjects (Combs et al., 2007).
- Subjects scoring high on paranoia are more likely to attribute negative events to other people rather than the own person or circumstances (Kinderman & Bentall, 1996).
- It should be possible to identify sub-forms of paranoia, even in a non-clinical sample (Trower & Chadwick, 1995; Combs et al., 2007).
- Participants scoring high on paranoia will report more negative experiences throughout their lives (Melo, Taylor & Bentall, 2006).
- Respondents scoring high on paranoia will report more contamination sequences than normal-scoring subjects (McAdams, 2001).
- Subjects scoring high on paranoia will show more themes of agency in their life stories than subjects in the normal-scoring group.

# Methods

## Participants and Procedure

147 undergraduate psychology students of the University of Twente, located in the Netherlands, participated in the study. 34 of the participants were male and 113 were female, with a mean age of 20.31 years (SD=1.79), ranging from 18 to 27 years of age. 50% of the participants were German, 48% were Dutch and 1% reported another nationality. All of the participants passed a language course and a language test on NT2 level 5 (Dutch as second language) if Dutch was not their native language. Determined by self-report, the study progress ranged from two to 120 European Credit Points, with a mean of 27.04 European Credit Points (SD=19.30). Table 1 summarizes the sample characteristics.

Participants were recruited via the subject pool of the University of Twente and received course credits for participating. The subjects had to fill out an online-survey, including six different scales and some additional questions regarding demographical data. First, participants were asked to state their age, nationality and study progress. After completing the demographic questions, the participants had to fill out the NEO-FFI, the Internal Personal Attribution Style Questionnaire, the Paranoia Scale, the Brief Fear of Negative Evaluation Scale, the Zung and the Rosenberg Self-Esteem Scale.

The participants were screened on paranoid thoughts with use of the paranoia scale. According to these scores, subjects were divided in a high-scoring and a normal-scoring group. Subjects with scores higher than one standard deviation above the mean on the paranoia scale (PS≥60, 1+SD) were placed in the high-scoring group. Participants in this study scored on average 6 points higher on paranoia than participants in American studies. That is why we did not use norm scores to identify the cutoff scores as reported by Fenigstein and Vanable (1992) and by Combs, Penn and Fenigstein (2002).

23 of the 147 participants were placed in the high-scoring group. That is 15.65% of all participants. Six of them were male, 17 female, 13 were Dutch and ten of German nationality. The remaining 124 subjects were placed the normal-scoring group. 28 subjects were male, 96 female, 58 were Dutch, 64 German and two participants reported another nationality. There was no significant difference between the high-scoring and the normal scoring group on age, $t(145)=1.68$, $p=.10$; study progress, $t(145)=.28$, $p=.78$; gender, $X^2(145)=.13$, $p=.71$; and nationality, $X^2(145)=1.01$, $p=.60$.

After completing the Rosenberg Self-Esteem Scale, the last scale of the online-survey, the participants were asked to address remarks regarding the study and to state their e-mail addresses if they are willing to participate in an interview. Participants also had the possibility to state their email addresses if they are interested in the results and want to receive them by e-mail. Subjects willing to participate in the interviews were contacted by e-mail and could register for one of the time-slots via the subject pool of the University of Twente, or could make an appointment by e-mail.

To compare the life story interviews of high- and normal-scoring participants, we wanted to interview five respondents of each group. Nine participants revealed to be willing to participate in the interviews and stated their e-mail addresses to be contacted. Finally, seven respondents, who scored within the normal-range on paranoia, participated in the life story interviews. The interviewer did not know the scores on the online-survey. Four of them were male and three female, two Dutch and five German. No one in the high-scoring group was willing to participate in the interviews.

This study was approved by the institutional review board.

Table 1

*Summary Sample Characteristics*

| Characteristics | Online-survey study | | | Life story interview |
|---|---|---|---|---|
| | Group | | | |
| | High-scoring N=23 | Normal-scoring N=124 | Total Sample N=147 | N=7 |
| N (%) | | | | |
| Female | 17 (73.9%) | 96 (77.4%) | 113 (76.9%) | 4 (5.7%) |
| Male | 6 (26.1%) | 28 (22.6%) | 34 (23.1%) | 3 (4.3%) |
| Dutch | 13 (56.5%) | 58 (46.8%) | 71 (48.3%) | 5 (7.1%) |
| German | 10 (43.5%) | 64 (51.6%) | 74 (50.3%) | 2 (2.9%) |
| Other Nationality | 0 (0.0%) | 2 (1.6%) | 2 (1.4%) | 0 (0.0%) |
| Mean (SD) | | | | |
| Age | 19.74 (1.21) | 20.42 (1.86) | 20.31 (1.79) | 21.14 (3,24) |
| Age range | 18-23 | 18-27 | 18-27 | 18-27 |
| Study progress | 26.00 (18.43) | 27.23 (19.51) | 27.04 (19.30) | 26.29 (9.07) |
| Study progress range | 4-76 | 2-120 | 2-120 | 19-45 |

## Measures

### *NEO-FFI*

The NEO-FFI (McCrae & Costa, 2004) is the short version of the NEO-PR. It is a 60-item self-report scale scored on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The NEO-FFI measures the Big-five personality traits neuroticism, extraversion, openness, conscientiousness and agreeableness. We used the Dutch version of the NEO-FFI, translated by Hoekstra, Ormel and de Fruyt (1996). According to the COTAN-evaluation in 1999, the NEO-FFI is a good constructed test, the quality of the test and the manual were rated good, norms, reliability and construct validity were rated satisfactory and the criterion validity was rated inadequate. In this study we have found satisfactory reliabilities of all sub scales (Neuroticism: α=.83; Extraversion: α=.77; Openness: α=.72; Conscientiousness: α=.79; Agreeableness: α=.70). We chose the NEO-FFI to be the first scale of the survey, because it is an accessible and easy to fill out scale. Furthermore, the NEO-FFI is the longest questionnaire and it might be exhausting if the participants had to fill it out later.

### *Internal Personal Situational Attribution Style Questionnaire*

The Internal Personal Situational Attribution Style Questionnaire (IPSAQ; Kinderman & Bentall, 1996, 1997) is a 32-item scale with 16 positive and 16 negative social situations described in the second person, e.g. “A friend said that he (she) has no respect for you.” The respondent is asked to rate the situations described as internal (something to do with the subject him/herself), personal (something to do with another person) or situational (something to do with situational circumstances or chance). Furthermore, the respondent is asked to write down the single most likely cause of the situation.

Two derivates can be derived on the basis of the answers: the externalizing bias (EB; calculated by subtracting the number of internal attributions for negative events from the number of internal attributions for positive events) and the personalizing bias (PB; calculated by dividing the number of personal attributions for negative events by the sum of personal en situational attributions of negative events). A positive score on EB

indicates strong self-serving biases, which means that persons blame themselves less for negative events than for positive ones. PB scores greater than 0.5 indicate that personal attributions are used more often than situational ones for negative events.

We have found an overall internal reliability of α=.68 in this study, with acceptable levels for the six subscales (positive-internal α=.65; positive-other α=.67; positive-situational α=.62; negative-internal α=63; negative-other α=.63; negative-situational α=.72) and the two derivates (EB α=.65 and PB α=.61). The Internal Personal Situational Attribution Style Questionnaire was translated into Dutch for use in this study.

Some participants stated that they had difficulties to define the single major cause of the social situations, reporting that it was not clear what they had to do and that it is not logical that the statements are about “a friend”.

*Paranoia Sale*

The paranoia scale (PS; Fenigstein & Vanable, 1992) is a 20-item self-report scale to measure paranoid thoughts on daily events and situations in a sub-clinical sample. Each item is scored on a 5-point Likert scale (1=not at all applicable, 2=slightly applicable, 3=moderately applicable, 4=very applicable, 5=extremely applicable). The paranoia scale is developed on the basis of the Minnesota Multiphasic Personality Inventory (MMPI). According to the scores on the paranoia scale participants were screened on paranoid thoughts and divided in a high-scoring and a normal-scoring group. Higher scores implicate paranoid thoughts, with the scores ranging from 20 to 100. For the use in this study, the paranoia scale was translated into Dutch. We have found a good reliability of the scale (α=.88).

The paranoia scale was placed in the middle of the online-survey. Some questions could be confronting and it would not give the participant a positive feeling to begin or end the survey with this scale.

*Brief Fear of Negative Evaluation Scale*

The Brief Fear of Negative Evaluation Scale (Leary, 1983) is a 12-item self-report scale scored on a 5-point Likert scale (1=not at all characteristic of me, 2=slightly characteristic of me, 3=moderately characteristic to me, 4=very characteristic of me, 5=extremely characteristic of me). With the use of this scale it is possible to measure a

person’s social anxiety, the avoidance of evaluation situations and the expectation of evaluation in certain situations. In this study, we have found a high reliability, with a Cronbach's alpha of .96.

We used the Dutch version of the Brief Fear of Negative Evaluation Scale, translated by Bögels (2011).

*Zung Self-Rating Depression Scale*

The Zung Self-Rating Depression Scale (Zung, 1965) is a 20-item self-rating depression scale scored on a 4-point Likert scale (1=a little of the time, 2=some of the time, 3=good part of the time, 4=most of the time). The Zung is used to measure the recent depressed status of the participants. Scores on the Zung range from 20 to 80, divided into four ranges: 20-49 normal range, 50-59 mildly depressed, 60-69 moderately depressed, 70 and above severely depressed. We used the Dutch version in this study (Mook, Kleijnen & van der Ploeg, 1990).

According to the COTAN-evaluation in 1989, the test construction is rated good, quality of the test, reliability and construct validity are rated satisfactory and the quality of the manual, the norms and criterion validity are rated inadequate. In this study, we have found a Chronbach’s alpha of .78.

*Rosenberg Self Esteem Scale*

The Rosenberg Self Esteem Scale (Rosenberg, 1965) is a 10-item self-report scale to measure self-empowerment and general feelings about oneself. Each item is scored on a 4-point Likert scale (1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree). Higher scores implicate more self-esteem. We used the Dutch version of the scale (Zwanikken, 1997). We have found an adequate reliability, with a Chronbach’s alpha of .81.

The Rosenberg Self-Esteem Scale was the last scale of the survey. It is one of the shortest scales and the questions are relatively easy to answer. So, we chose this scale to be the last in the online-survey.

Table 2 summarizes the internal reliabilities of the different scales or subscales.

Table 2

*Internal Reliability of the Scales Used in the Online-survey Study*

| Scale/Sub scale | Number of items | Cronbach's alpha |
|---|---|---|
| Paranoia | 20 | .88 |
| Depression | 20 | .78 |
| Social anxiety | 10 | .96 |
| Attribution Style | 32 | .68 |
| - Positive internal | 16 | .65 |
| - Positive other | 16 | .67 |
| - Positive situational | 16 | .62 |
| - Negative internal | 16 | .63 |
| - Negative other | 16 | .63 |
| - Negative situational | 16 | .72 |
| - Externalizing Bias | 32 | .65 |
| - Personalizing Bias | 32 | .61 |
| Self-esteem | 12 | .81 |
| Neuroticism | 12 | .83 |
| Extraversion | 12 | .77 |
| Openness | 12 | .72 |
| Conscientiousness | 12 | .79 |
| Agreeableness | 12 | .70 |

*Life story interview*

The life story interview is an interview method developed by Dan P. McAdams which is based on Erik Erikson's developmental concept "ego identity" (McAdams, 2001). Participants are asked to tell the story of their lives. A story about one's life represents a person's identity. Life story interviews are not a complete representation of a person's life. Everything the participants tell is subjective and selective. A life story interview lasts approximately two hours. The interviews are recorded to write them out and to analyze them later.

After giving informed consent, the life story interviews were administered individually at the research laboratory of the University of Twente. First, the participant is asked to define chapters of his or her life and to give a short summary of each chapter.

Second, the subject is asked to define key scenes of his or her life, including a high, low and a turning point in life. Third, the respondent is asked to explain his or her future script. Fourth, the client is asked to tell about his or her challenges in life, including health and loss among other things. Fifth, the subject is asked to explain his or her personal ideologies and sixth, to identify a life theme. Finally, the respondent is asked to reflect on the interview. Subjects were asked how they felt during the interview, if they have remarks regarding the interview procedure or questions. Finally, the respondent is debriefed by the interviewer.

In this study, the life story interviews lasted between 53 and 102 minutes. All participants were open and willing to tell the story of their lives. The subjects gave answers to all questions. Participants stating that they have talked or thought about different life events more frequently, told more fluently and less emotionally the story of their lives. All participants were positive about the interview. Nobody reported negative feelings or distress. Some participants thought that talking about negative life events with an unknown person makes it easier to talk about it next time. Some questions are rated more difficult than others and participants had to take more time to think about these questions. To define the ultimate value of life and to give a life theme was rated most difficult.

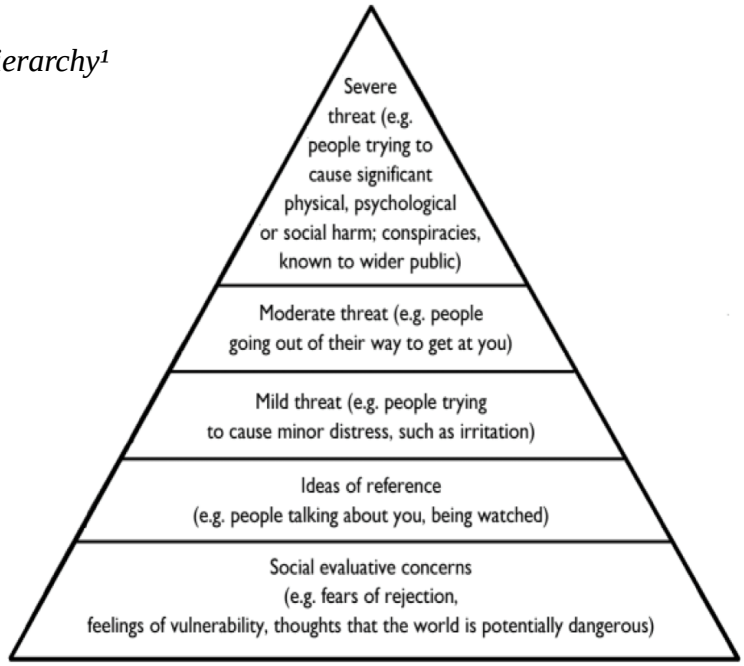
Before analyzing the life story interviews, they were written out synoptic to get an overview of the respondent's lives. First, the interviews were analyzed with use of the paranoia hierarchy (see figure 1) developed by Freeman et al. (2005). Different experiences and life events were classified according to the stages of the model to investigate if and how often thoughts of suspiciousness or persecution were mentioned in a non-clinical sample. Second, the interviews are coded for redemption and contamination sequences and themes of agency and communion (Foley Center for the Study of Lives, 1999, 1998; McAdams, 2001a). The plots or motivational dispositions are scored by the presence (+1) or absence (0) in an episode (e.g. high point, low point, turning point) of the life story interview. Contamination sequences implicate that an originally positive event is overwhelmed by a negative one. Contamination does not include sub categories, so a single score is given. The scores on redemption, agency and communion are made up of different sub scores. Total scores are calculated by adding all sub-scores. Redemption sequences must be indicated by redemption imagery, which comprises the following sub categories: sacrifice, recovery, growth and learning. Redemption means that an initially negative event leads to an emotionally positive

outcome. Giving birth to a child or getting better after a long time of illness are examples of sacrifice and recovery, respectively. The participant can get an additional score if improvement, enhanced agency, enhanced communion or ultimate concerns were mentioned in relation to the redemption sequence. For example, enhanced agency might be reported if a person is more aware of his or her own strength after the death of a person standing nearby. Enhanced communion might be reported when family members come closer after the death of a loved one. The motivational disposition agency is characterized by individuality, aloneness, achievement and power. Agency includes the following sub categories: self-mastery, status/victory, achievement responsibility and empowerment. Communion can be described in terms of togetherness, intimacy and union and it covers the following sub categories: love/friendship, dialogue, caring/help and unity/togetherness. In addition to these code schemes (Foley Center for the Study of Lives, 1999, 1998; McAdams, 2001a), the number of positive and negative life events reported by the respondents was assessed.

The scores on the online-survey study were not known by the researcher. The interviews were administered and analyzed blindly.

Figure 1

*The Paranoia Hierarchy*[1]




[1]From "Psychological Investigation of the structure of paranoia in a non-clinical population", by Freeman, D., Garety, P. A., Ebbington, P. E., Smith, B., Rollinson, R., Fowler, D., et al., 2005, *British Journal of Psychiatry, 186*, p. 433.

## Results

### *Statistical Analysis*

Analysis of the online-survey was conducted using SPSS, the Statistical Package for Social Sciences, version 18.0 for Windows (SPSS, 2008). Significant test results are given as two-tailed probabilities.

### *Online-survey study*

With use of independent samples t-tests, significant differences between the scores of participants in the high-scoring and normal-scoring group were identified. Table 3 summarizes the results. Participants in the high-scoring group scored significantly higher on depression, social anxiety and neuroticism. There was also a significant effect for self-esteem and agreeableness, with higher scores in the normal-scoring group. There was no significant effect for nationality in the high-scoring group. In the normal-scoring group, German subjects scored significantly higher on paranoia, $t(21)=-3.11$, $p=.002$.

Table 3

*Summary of Means and Standard Deviations of the Research Variables*

| Online-survey study | Mean (SD) Group | | *t*(145) |
|---|---|---|---|
| | high-scoring N=23 | normal-scoring N=124 | |
| Paranoia | 65.78 (6.11) | 44.58 (8.33) | -11.62** |
| Depression | 46.39 (8.13) | 39.05 (6.06) | -4.125 |
| Social anxiety | 31.87 (12.17) | 20.31 (11.41) | -4.41** |
| Self-esteem | 16.74 (3.6) | 20.85 (3.88) | 4.71** |
| Externalizing Bias | 1.61 (3.73) | 2.39 (3.93) | .89 |
| Personalizing Bias | .55 (.25) | .49 (.25) | -1.18 |
| Neuroticism | 39.91 (8.23) | 32.56 (6.42) | -4.82** |
| Extraversion | 39.61 (7.15) | 42.05 (5.32) | 1.56 |
| Openness | 40.78 (5.80) | 40.95 (6.00) | .13 |
| Agreeableness | 40.43 (5.91) | 43.58 (4.89) | 2.79* |
| Conscientiousness | 40.04 (5.93) | 41.21 (5.96) | .86 |

*p<.05; **p<.005

Table 4 shows correlations between the different scales and the demographic values age and study progress. Different measures are related. The scores on paranoia were strongly positively associated with the scores on depression, social anxiety, and neuroticism. Negative correlations were found between paranoia and self esteem, extraversion, and agreeableness. The scores on depression are positively correlated with the scores on social anxiety, neuroticism, and negatively with the scores on self-esteem, extraversion, agreeableness, and conscientiousness. Social anxiety is positively correlated with neuroticism, and negatively with the scores on self-esteem, the externalizing bias, and extraversion. Self-esteem is positively associated with the scores on extraversion, the externalizing bias and study progress. A negative correlation was found between self-esteem and neuroticism. A strong negative correlation was found between the scores on neuroticism and extraversion. Furthermore, extraversion correlated positively with agreeableness, and agreeableness is associated positively at a .01 level with conscientiousness.

Table 4

*Correlation Coefficients among the Research Variables*

| | Paranoia | Depression | Social anxiety | Self-esteem | Externalizing Bias | Personalizing Bias | Neuroticism | Extraversion | Openness | Agreeableness | Conscientiousness | Age | Study progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paranoia | 1.00 | | | | | | | | | | | | |
| Depression | .52** | 1.00 | | | | | | | | | | | |
| Social anxiety | .45** | .46** | 1.00 | | | | | | | | | | |
| Self-esteem | -.49** | -.68** | -.54** | 1.00 | | | | | | | | | |
| Externalizing Bias | -.04 | .12 | -.17* | .26** | 1.00 | | | | | | | | |
| Personalizing Bias | .13 | .16 | .14 | -.16 | .12 | 1.00 | | | | | | | |
| Neuroticism | .48** | .65** | .57** | -.72** | -.16 | .102 | 1.00 | | | | | | |
| Extraversion | -.24** | -.36** | -.18* | .31** | .04 | .01 | -.29** | 1.00 | | | | | |
| Openness | .01 | -.09 | -.12 | .02 | -.00 | -.12 | .41 | -.06 | 1.00 | | | | |
| Agreeableness | -.37** | -.20* | -.01 | .16 | .05 | .01 | -.08 | .34** | .01 | 1.00 | | | |
| Conscientiousness | -.05 | -.23** | -.03 | .09 | .03 | -.05 | -.12 | .14 | .13 | .31** | 1.00 | | |
| Age | -.14 | -.05 | -.16 | .05 | .07 | -.07 | -.13 | -.12 | .10 | -.19* | -.13 | 1.00 | |
| Study progress | -.05 | -.13 | -.16 | .24** | .12 | .02 | -.11 | -.03 | .02 | -.06 | -.01 | .09 | 1.00 |

*p<.05; **p<.01

A negative correlation was found between the age of the participants and agreeableness. Scores on the personalizing bias and openness correlated with no other test scores.

To control for correlations between the different scales, we conducted a linear regression analysis. By using this analysis, relationships between the different constructs and paranoia are identified when other factors were held constant. According to this analysis, scores on paranoia are associated with scores on depression, social anxiety, agreeableness and conscientiousness. Table 5 summarizes the results.

Table 5

*Summary Linear Regression Analysis on Paranoia*

| Variable | B | SE B | β |
|---|---|---|---|
| Depression | 0.42 | 0.15 | .26* |
| Social anxiety | 0.22 | 0.07 | .24** |
| Self-esteem | -0.22 | 0.28 | -.08 |
| Externalizing Bias | 0.27 | 0.19 | -.10 |
| Personalizing Bias | 2.46 | 2.86 | -.06 |
| Neuroticism | 0.20 | 0.16 | .13 |
| Extraversion | 0.11 | 0.14 | .06 |
| Openness | 0.10 | 0.12 | .05 |
| Agreeableness | -0.80 | 0.15 | -.37** |
| Conscientiousness | 0.26 | 0.13 | .14* |

*Note:* $R^2$=.46

*p<.05; **p<.005

A K-means cluster analysis was conducted on the scores of the high-scoring group. The scores on the IPSAQ were not used in the cluster analysis, but analyzed separately to validate the subtypes. Two clusters were identified. Table 6 represents the final cluster centers of the two clusters derived.

Table 6

*Final Cluster Centers*

| Variable | Cluster | |
|---|---|---|
| | 1 | 2 |
| Depression | -.68 | .88 |
| Social Anxiety | -.53 | .69 |
| Self-esteem | .57 | -.75 |
| Neuroticism | -.54 | .71 |
| Extraversion | .53 | -.70 |
| Openness | .06 | -.08 |
| Conscientiousness | .30 | -.39 |
| Agreeableness | .14 | -.19 |

*Note:* All scores are standardized z-scores.

Table 7

*Summary Scores by Group Membership*

| Measure | Group | | | Analysis | |
|---|---|---|---|---|---|
| | 1 Cluster1 N=13 | 2 Cluster2 N=11 | 3 Normal-scoring N=124 | F (2,146) | Significant Post Hoc Comparisons[a] |
| Paranoia | 62.15 (2.76) | 70.50 (6.11) | 44.59 (8.33) | 73.13** | 3<1<2 |
| Depression | 40.84 (4.37) | 53.60 (5.81) | 39.05 (6.06) | 28.01** | 1,3<2 |
| Social Anxiety | 25.38 (11.53) | 40.30 (6.71) | 20.31 (11.41) | 15.39** | 1,3<2 |
| Self-esteem | 18.85 (3.02) | 14.00 (2.31) | 20.85 (3.88) | 16.47** | 1,3>2 |
| Neuroticism | 35.38 (7.63) | 45.80 (4.47) | 32.56 (6.42) | 20.15** | 1,3<2 |
| Extraversion | 43.46 (4.03) | 34.60 (7.35) | 42.05 (5.32) | 9.67** | 1,3>2 |
| Openness | 41.15 (6.50) | 40.30 (5.03) | 40.95 (6.00) | .07 | |
| Conscientious-ness | 40.92 (6.22) | 38.90 (6.11) | 43.58 (4.89) | .70 | |
| Agreeableness | 42.23 (5.28) | 38.10 (5.63) | 41.21 (5.96) | 5.95** | 3>2 |

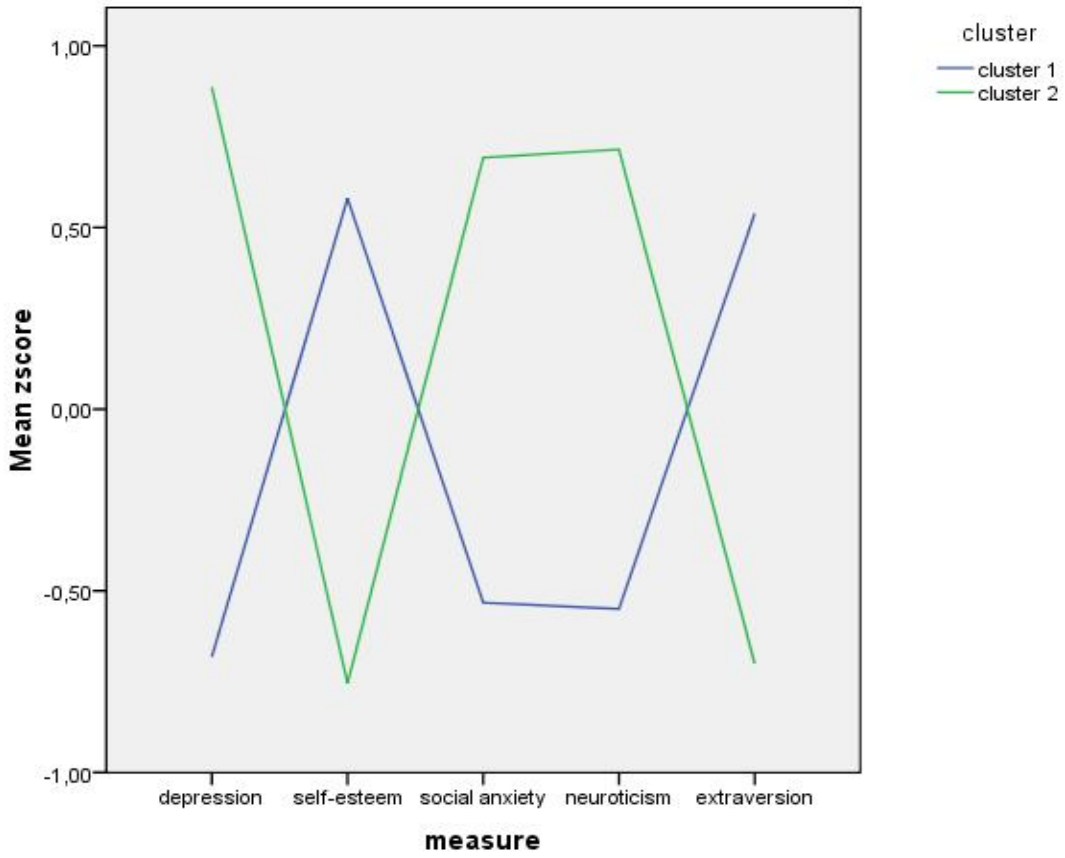
*Note:* [a]Significantly different groups (p<.05). Tukey HSD post hoc comparisons were used. **p<.005

The results of the One-way ANOVA and the Tukey post hoc comparisons (Table 7) show that there is only a single significant difference between cluster 1 and the normal-scoring group. Cluster 1 participants scored significantly higher on paranoia than the normal-scoring group, but significantly lower than cluster 2 participants. Cluster 2 participants showed significantly higher scores than the normal scoring group and cluster 1 participants on depression, social anxiety, and neuroticism and significant lower scores on self-esteem and extraversion. No significant differences could be derived on these measures between cluster 1 and the normal-scoring group. The normal-scoring group showed significant higher scores on agreeableness than cluster 2.

A graph of the two clusters grouped by test scores is represented in figure 2.

Figure 2

*Subtypes of paranoia*




As in the study of Combs et al. (2007) we tried to verify the subtypes by the scores on the IPSAQ. The scores on the IPSAQ were analyzed using a One-way ANOVA.

No significant differences were found between the two clusters and the normal-scoring group. Table 8 presents the scores on the IPSAQ by group membership.

Table 8

*IPSAQ Scores by Group Membership*

| Measure | Group | | | Analysis |
|---|---|---|---|---|
| | 1 Cluster1 N=13 | 2 Cluster2 N=11 | 3 Normal-scoring N=124 | F (2,146) |
| Positive-internal | 6.92 (2.10) | 8.60 (2.55) | 7.87 (2.93) | 1.04 |
| Positive-other | 5.92 (2..29) | 3.50 (2.37) | 4.34 (2.79) | 2.06 |
| Positive-situational | 3.15 (1.34) | 3.90 (1.45) | 3.79 (2.43) | .47 |
| Negative-internal | 6.08 (2.60) | 6.00 (2.49) | 5.48 (2.92) | .38 |
| Negative-other | 5.00 (1.22) | 6.67 (3.32) | 4.89 (2.82) | 1.58 |
| Negative-situational | 4.92 (2.47) | 3.44 (2.46) | 5.54 (3.29) | 1.94 |
| Externalizing Bias | .85 (4.14) | 2.60 (3.03) | 2.39 (3.93) | .97 |
| Personalizing Bias | .53 (.16) | .59 (.34) | .49 (.25) | .87 |

*Life story interviews*

Throughout the interviews, between three and six life chapters were identified. Five of the seven participants distinguished the life chapters according to their school career. Two subjects described life chapters according to personal events, like an illness or relocations. Six out of the seven subjects have lost at least one loved person or a person standing nearby, until age 18. The parents of two subjects were divorced at age five. Two other respondents, who are homosexual, reported being bullied in early adolescence. Table 9 summarizes the major life events of the participants.

With use of the paranoia hierarchy (Freeman et al., 2005), different thoughts and feelings were classified as suspicious or persecutory. Most of the events which can be classified according to this model happened in the past of the respondents. Two male participants, aged 18 and 27 at the time of the interview, told that they were scared of

being unaccepted and rejected, if they act and behave authentically. Participant 1 said the following in this context: “I was scared that they [other children at school] wouldn't accept me, if I acted as I really was.” These thoughts can be classified as social evaluative concerns. Both participants were bullied in early adolescence, the time they have had the first homosexual feelings. The subjects told that they conformed to different groups, e.g. at school, so much, that they did not know anymore who they were, at that time. Participant 5 told: “I really had to search for 'who I am'. It was a difficult time. Not before the last years of adolescence I realized who I am. Only then, I could appreciate my own value.” Participant 1 reported feelings of uncertainty and fear of not being good enough. He thought that he would not be a good child, if his parents had got to know about his homosexuality: “Then, I thought that they wouldn't accept me. I felt being a fool and that I'm not good enough, not being good as their child.” These thoughts and feelings of being good for nothing can also be identified as social evaluative concerns, in this context. The respondents noted that these thoughts and feelings were irrational, but that they were present at that time.

Female participants also reported thoughts and feelings of social evaluative concerns. Participant 3 told that she was precarious of telling her parents and family of wanting to stop with her studies. She was afraid of being unaccepted. Furthermore, she told that she did not want to see different family members. She thought that her family would talk about her and that everyone would remember her as the one who stopped with the studies. This last thought can be identified as idea of reference, stage two in the model of Freeman et al. (2005).

Participant 4 told that she is observant and mistrusting when she gets to know other people: “It takes a long time before I can trust someone. If I think that somebody is unreliable, I don't want to have contact with this person. I can see if people are bad and then I don't want to talk to them.” She stated having only a couple of good friends and that she often thinks about the friendships value. She told: “As a child I was naïve. I thought that people always are honest. Friends, who are no friends anymore, have told me which things are important in such a relationship.” She stated that she had undergone a lot of situations in which her friends acted selfish and thought only about themselves. Because of that, honesty and the absence of envy are one of the most important values in life for her.

*I have had a lot of situations in which friends acted egoistic and only thought about themselves. I'm too sensible for that, maybe because I haven't got brothers or sisters. Honesty is really important and not being jealous. A lot of people are jealous, friends, too. […]*

Participant 4

Moreover, she stated that she knows a lot of people wanting to give her a bad feeling about herself.

*Sometimes, people want to give you a bad feeling. Then they say things like: 'Why are you looking so bad today?' […] Friends don't have to do this with me. […] Persons are acting like this to feel better. If you are in balance, then you know that it isn't the case [looking bad] and that the person only wants to be better off. […]If a person isn't in balance with his- or himself, then it is impossible to contact other people. […]*

Participant 4

According to the paranoia hierarchy (Freeman et al., 2005), these utterances can be identified as mild threat.

The thoughts and feelings which can be classified according to the paranoia hierarchy fall within the first three stages of the model (Freeman et al., 2005). Most of the thoughts concern social evaluative matters. Thoughts and fears of unacceptance and rejection were most common, but ideas of reference and mild threat were also mentioned. The upper two categories, moderate and severe threat, were not indicated throughout the interviews.

Table 10 shows age, gender and nationality of the respondents and the scores and sub-scores on redemption, contamination, agency and communion. Furthermore, the numbers of positive and negative events and the negative/positive event ratio are shown in the table.

The participants are arranged according to the scores on the paranoia scale to make score patterns visible. Beginning with the lowest test scores, we get the following order: participant 5 (PS=32, one standard deviation below the mean), participant 3

(PS=40), participant 4 (PS=41), participant 6 (PS=42), participant 2 (PS=44), participant 1(PS=47) and as last participant 7 (PS=49).

All participants reported at least one redemption sequence. For example, subjects 1 and 5 stated that their life got better when they had accepted that homosexuality is a part of them and when they realized that they had to me more open, more to be themselves and not trying to act and behave like somebody else. Participant 5 told: “The relationship got much better after that [coming out]. I could be myself, again.” Recovery and growth were the two redemption imagery categories mentioned and improvement and enhanced agency were identified among the sub-categories. The scores varied between 1 and 4 on redemption, but no specific score pattern was mentionable on the basis of the paranoia scores.

Contamination sequences were not mentioned throughout the interviews.

The scores on agency varied among participants, ranging from 1 to 4. All participants reported self-mastery, six participants reported situations of achievement responsibility and only one participant reported status/victory or empowerment.

The communion scores ranged from 1 to 5. Participant 5, who scored one standard deviation below the mean on paranoia, has had the highest scores on communion, with all subcategories covered. Participants with the three highest scores on paranoia had a score of 1 on communion. With increasing scores on paranoia, scores on communion get lower and fewer sub-categories of communion were mentioned. Six of the seven participants reported moments of unity/togetherness throughout the life story interviews. Only one participant reported caring/help, four participants mentioned the sub-category dialogue and only the two participants with the lowest scores on paranoia scored on the sub-category love/friendship.

Participant 7, who has had the highest scores on paranoia and depression, reported the most negative events (6). All other subjects mentioned two or three negative events throughout the interviews. Participant 5, with the lowest scores on paranoia, reported the most positive events (5). All other subjects mentioned two or three positive events. It might be possible that the raw number of positive or negative life events is not important, but the ratio. With increasing scores on paranoia, the negative/positive events ratio is also increasing. This might implicate that participants scoring higher on paranoia have experienced more negative events proportionally to positive events throughout their lives.

Table 9

*Summary of Major Life Events*

| | participant | | | | | | |
|---|---|---|---|---|---|---|---|
| Life event | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Death | Grandfather at age 15 | Uncle at age 11 | Grandmother at age 9 | Uncle at age 18 | | Classmate at age 18 | Uncle and aunt at younger age, Aunt at age 8, Brother at age 15 |
| Divorce | | At age 5 | | At age 5 | | | |
| Migration/ Relocation | | | | From Russia to Germany at age 10<br>From Germany to the Netherlands at age 19 | Four times in the Netherlands | From Germany to the Netherlands at age 19<br>From the Netherlands to Germany at age 21/22 | |
| Personal struggle | Homosexuality | Breaking contact with father at age 20 | | Uncommon illness | Homosexuality | | To cope with experiences of death<br>Not only to be "the sister of [her brother]" |

Table 10

*Scores on Redemption, Contamination, Agency and Communion by Participant*

| | | | Participant | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 5 | 3 | 4 | 6 | 2 | 1 | 7 |
| | | Age | 27 | 19 | 21 | 23 | 22 | 18 | 18 |
| | | Sex | male | female | female | female | male | male | female |
| | | Nationality | Dutch | Dutch | German | German | Dutch | Dutch | Dutch |
| Redemption | Redemption Imagery | Sacrifice | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Recovery | +1 | +1 | +1 | 0 | 0 | 0 | 0 |
| | | Growth | +1 | 0 | 0 | +1 | 0 | +1 | +1 |
| | | Learning | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sub-categories | Improvement | +1 | +1 | +1 | +1 | +1 | 0 | 0 |
| | | Enhanced Agency | +1 | 0 | 0 | +1 | 0 | +1 | +1 |
| | | Enhanced Communion | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Ultimate concerns | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total score Redemption** | | | **+4** | **+2** | **+2** | **+3** | **+1** | **+2** | **+2** |
| Contamination | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | Participant | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 5 | 3 | 4 | 6 | 2 | 1 | 7 |
| Agency | Self-Mastery | +1 | +1 | +1 | +1 | +1 | +1 | +1 |
| | Status/Victory | 0 | 0 | 0 | 0 | 0 | +1 | 0 |
| | Achievement Responsibility | +2 | +1 | +2 | 0 | +1 | +1 | +1 |
| | Empowerment | 0 | 0 | +1 | 0 | 0 | 0 | 0 |
| **Total score agency** | | **+3** | **+2** | **+4** | **+1** | **+2** | **+3** | **+2** |
| Communion | Love/Friendship | +2 | +1 | 0 | 0 | 0 | 0 | 0 |
| | Dialogue | +1 | +1 | +1 | 0 | 0 | +1 | 0 |
| | Caring/Help | +1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Unity/Togetherness | +1 | +1 | +1 | +2 | +1 | 0 | +1 |
| **Total score Communion** | | **+5** | **+3** | **+2** | **+2** | **+1** | **+1** | **+1** |
| Negative Events | | +3 | +2 | +3 | +2 | +3 | +3 | +6 |
| Positive Events | | +5 | +3 | +3 | +2 | +2 | +2 | +3 |
| Ratio Negative/Positive Events | | .6 | .67 | 1.0 | 1.0 | 1.5 | 1.5 | 2 |

## Discussion

The goals of the present study were getting qualitative insights in paranoid ways of thinking, linking these findings to quantitative measures and to identify life events which might contribute to paranoia. We hypothesized that paranoia is related to depression, social anxiety, self-esteem and the personalizing bias. Furthermore, we expected that people scoring high on paranoia will report more negative life events, more contamination sequences and themes of agency than normal scoring participants.

We have found significant correlations between paranoia and depression, social anxiety and self-esteem. These findings are in accordance with the findings of Combs et al. (2007) and our hypotheses. Furthermore, we have found a percentage of 15.6% of all participants scoring one standard deviation above the mean on paranoia. This does also agree with the results of Combs et al. (2007), who have found a percentage of 15.8 %. The similar percentages implicate that the occurrence of paranoia is following a normal distribution, even in a non-clinical sample. Our decision of not using norm and cut-off scores of the paranoia scale used in American studies is confirmed. Bentall and Taylor (2006) argued that paranoia is a dimensional phenomenon and according to Freeman et al. (2005) the total numbers of thoughts of suspiciousness are distributed continuous in the general population. These findings demonstrate and might explain commonalities and associations of paranoia with other mental health disorders as depression and anxiety.

We did not find an association between paranoia and the personalizing bias. So, Kinderman and Bentall's (1996) outcomes could not be replicated.

In the present study, personality dimensions were measured. We have found a positive correlation between paranoia and the personality dimension neuroticism. Neuroticism includes the following facets: anxiety, hostility, depression, self-consciousness, impulsiveness and vulnerability to stress (McCrae & Costa, 2004). According to the facets depression and anxiety it is likely that there is a positive correlation between paranoia and neuroticism. Extraversion and agreeableness were negatively associated with scores on paranoia.

We did not only conduct a correlation analysis to identify associations between the different constructs. A linear regression analysis was used to identify relationships between different measures and paranoia if other factors were held constant. The linear regression analysis showed that scores on paranoia are related to scores on depression,

social anxiety, agreeableness and conscientiousness. High scores on depression and social anxiety and low scores on agreeableness go together with high scores on paranoia if other factors were held constant. These findings are in accordance with the correlations found between these constructs. It is noticeable that no correlation was found between paranoia and the personality dimension conscientiousness, but that the linear regression analysis showed significant results. The personality dimension conscientiousness is made up of the facets competence, order, dutifulness, achievement striving and self-discipline (McCrae & Costa, 2004). According to the symptoms of paranoia, people suffering paranoid ideation are not expected to have high scores on conscientiousness. Duijsens and Diekstra (1996) investigated the relationship of personality disorders with the Big-five personality dimensions. The authors have found negative correlations between PPD and agreeableness and positive correlations with neuroticism throughout their studies. Conscientiousness was correlated with the antisocial, impulsive, borderline and passive-aggressive personality disorders, but no correlations between paranoia and conscientiousness were reported (Duijsens & Diekstra, 1996). As mentioned earlier, people who act passive-aggressive often show symptoms of paranoid ideation. This might explain the association between paranoia and conscientiousness, found here.

A significant negative correlation was found between self-esteem and paranoia, but the linear regression analysis did not show significant results. Freeman et al. (2005) reported that a lack of social self-confidence might contribute to the occurrence of paranoia since people having low self-esteem and self-confidence are more vulnerable and sensible. Self-esteem correlated strongly negative with depression. So, it is possible that the scores on self-esteem are mediated by scores on depression. People who score high on depression are not likely to feel self-assertive, which might lead to low scores on self-esteem. This might explain why there was no relation between paranoia and self-esteem found in the linear regression analysis.

A significant positive correlation was found between paranoia and neuroticism, but the linear regression analysis showed no significant results. Neuroticism is strongly positive related to depression and social anxiety. So, it might be possible that the correlation between neuroticism and paranoia is mediated by these factors.

Causal relationships cannot be assumed, by any of the associated constructs. It is possible that there are underlying variables which are of influence. More research is needed, especially on personality characteristics which might be related to paranoia.

According to the American Psychiatric Association (2000), paranoia is more common in men than in women. We could not identify such a difference. In our sample, there was a significant effect for nationality in the normal-scoring group, with German respondents having higher scores. Little is known about cultural differences in paranoia. All tests and the interviews are administered in Dutch. So, an effect of language understanding might be possible. According to the study requirements in the Netherlands, international students had to pass a language test on NT2 level 5 and this effect should be minimal. It is also possible that a specific group Germans are studying social sciences in the Netherlands and that this contributes to the difference in scores on paranoia. We also recognized that participants in the present study scored on average 6 points higher than subjects in American studies. It might be possible that the translation of the paranoia scale contributes to this difference, but we reached a good internal reliability of the scale. More research on cultural differences in paranoia is needed.

We expected that it is possible to identify sub forms of paranoia in the present non-clinical sample. With use of a cluster analysis, we identified two sub types. Cluster 1 only differs on paranoia from the normal-scoring group. No differences on other measures were derived. Cluster 2 showed the highest scores on paranoia, depression, social anxiety and neuroticism and the lowest on self-esteem and agreeableness. Chadwick and Trower (1995) have identified two types of paranoia throughout their studies: poor me and bad me paranoia. Combs et al. (2007) identified three clusters based on the scores on depression, social anxiety and self-esteem. They identified poor me and bad me paranoia, and a neutral third cluster without elevations on the scores of the different tests. On the basis of these studies, it might be possible that cluster 1 represents such a neutral sub form of paranoia as found by Combs et al. (2007). According to the high scores on depression and social anxiety and the low scores on self-esteem, we can be relatively sure that cluster 2 in the present study represents bad me paranoia (Chadwick & Trower, 1995, Combs et al., 2007). But there is an aspect of uncertainty. We did not take measures of deservedness into account. Without these measures, we cannot be sure about our classification (Combs et al., 2007) and a comparison to Chadwick and Trower's (1995) typology is restricted. According to the scores on personality dimensions, high neuroticism and low extraversion might be characteristic of bad me paranoia. More research is needed to investigate personality differences in sub forms of paranoia.

In the study of Combs et al. (2007), the sub scores on the IPSAQ were used to

validate the sub types of paranoia. The authors have found an exaggerated self-serving bias (high scores on negative-other and the personalizing bias) of poor me paranoia participants. As mentioned earlier, we expected to find elevated scores on the personalizing bias of persons scoring high on paranoia, but no relation could be identified. We also could not identify a poor me paranoia sub-type, which might be a declaration of the absence of a relationship between paranoia and the personalizing bias in the present study. We did not find differences on IPSAQ sub scores between the two clusters and the normal-scoring group at all. The identification of a neutral sub type which differs only on paranoia scores from the normal scoring group might contribute to this. So, validation of the sub types on basis of the IPSAQ scores was not directly possible.

Melo, Taylor and Bentall (2006) argued that poor and bad me paranoia are different states and it was implicated that bad me paranoia emerged later in the course of paranoia. According to this finding it would be more likely to find poor me paranoia in a non-clinical sample. Melo, Taylor and Bentall did research on clinical samples. So, it might be possible that poor and bad me paranoid states also can change over time in sub-clinical samples. More research is needed on this.

Throughout the life story interviews we could identify thoughts which fall within the first three stages of the paranoia hierarchy, developed by Freeman et al. (2005). The most common thoughts identified, were fears of rejection. The applicability of the model in a non-clinical sample supports the assumption of Freeman et al. (2005) that paranoid ways of thinking are an everyday phenomenon. Otherwise, it is logical that people are afraid of being unaccepted and rejected in different situations. For example, homosexuality is not fully accepted in society. So, it is conceivable that the two homosexual participants reported social evaluative concerns. Participant 4 reported thoughts which can be classified as mild threat, stage three of the model. Quantitative measures of that participant fall within the normal range. It is not clear why she reported thoughts or feelings of mistrust and distress more often than other participants. Culture might be of influence. Participant 4 grew up in Russia until age 10 and then immigrated to Germany. The integration process and adaptation strategies might also be of effect. Freeman et al. (2005) argued that paranoia might give useful insights on optimal ways of coping. More frequent distressing paranoia was associated with emotional or avoidant coping and persons got isolated and felt powerless and depressed. Rational or task-oriented coping was mentioned more effective and persons

did not catastrophize and created a distance to think about and evaluate the situation (Freeman et al., 2005). Participants, who stated talking more frequently about life events, told less emotionally the story of their lives and by the most subjects, social evaluative concerns or ideas of reference were rated irrational at the time of the interview. So, taking time to reconsider and talking about life events might be negatively associated with paranoid ways of thinking. It is not possible to identify life events which might contribute to paranoid ways of thinking on the basis of such a small sample and the non-willingness of high-scoring subjects to participate in the interviews.

We hypothesized that subjects scoring high on paranoia will report more negative life events, more contamination sequences and themes of agency throughout the life story interviews. Since no participants of the high-scoring group were willing to participate in the interviews, we cannot say much about these expectations. The question remains if we can draw conclusions based on the subject's life stories, at all. A comparison of high- and normal scoring respondents was not possible, but within the normal scoring participants we could identify score patterns or trends. It is implicated that scores on communion decrease and that less communion categories are mentioned with increasing scores on paranoia. It is noticeable that the communion category love/friendship only was mentioned by two subjects with the lowest paranoia scores. This might implicate that experiences of love and friendship are negatively related to paranoid thoughts and feelings. On agency, the scores varied among the participants and a particular score pattern could not be identified. But, when we take the scores on communion into account, it is implicated that participants scoring higher on paranoia reported more themes of agency relative to themes of communion. This pattern is not fully consistent throughout the sample, but a relationship is implicated. Only the scores of participant 4 differed remarkably from this pattern and this participant mentioned the most thoughts on suspiciousness, classified with the paranoia hierarchy. So, higher scores on paranoia are likely to go together with an increasing agency/communion ratio. Furthermore, the negative/positive events ratio increased with higher scores on paranoia. It can be assumed that the raw number of positive or negative life events does not matter, but the ratio. Participants scoring higher on paranoia reported more negative than positive life events and participants scoring low, showed the reversed pattern. This might implicate that negative life events can be compensated with a higher number of positive life events. Strength and content of the life events are likely to play an important role. More research with much greater sample sizes and high-scoring

subjects, who are willing to participate in life story interviews or a comparable method, is required.

As already mentioned, the results and conclusions drawn on the basis of the life story interviews are limited according to the small sample size and the non-willingness of high-scoring subjects to participate in the interviews. There are some other limitations of the study, which should be mentioned. The interviews are scored by only one person, who also has administered the interviews. This might cause an interviewer bias. As well in the online-survey study as in the life story interviews, it is possible that participants answered socially desirable. Because of the anonymity granted by internet and the absence of personal interactions, it is more likely that participants answered socially desirable on questions of the online-survey study. According to Birnbaum (2001) internet research reaches the same results as laboratory-based studies, but we cannot be sure that we would have got the same results if the survey was administered in a laboratory setting with presence of a researcher. Granting of European Credit Points for participating in the study might be also of influence. It is possible that respondents participated not voluntarily, but according to their study requirements. Furthermore, the sample of students is selective. Only psychology and communication sciences students have had the possibility to take part in the study. According to the symptoms of paranoia, high-scoring subjects will be less willing to participate in studies. For further research, strategies of managing mistrust and suspiciousness and the stimulation of high-scoring participants to take part in research studies are important.

We used the paranoia scale as only measure of paranoia. According to Combs et al. (2007) this scale may be prone to an over endorsement of paranoid ideation. Freeman et al. (2005) argued that the paranoia scale includes items which are not directly related to paranoia and that the scale is not a pure measure of persecutory ideation.

*Conclusions*

Paranoia is correlated with depression, social anxiety, self-esteem, neuroticism and extraversion. By controlling for correlations between the constructs, paranoia is related to depression, social anxiety, neuroticism and conscientiousness. Depression and social anxiety are associated with different constructs and might influence the relationships of paranoia with the other measures. According to this, it might be

important to develop a scale which can differentiate between paranoia and depression. Also in a non-clinical sample sub-forms of paranoia can be derived. We have found two sub types, bad me paranoia and a neutral form which differs only on the scores on paranoia from the normal-scoring group. Poor me paranoia could not be identified in the present study.

With increasing scores on paranoia, less communion themes were mentioned and the ratio of negative and positive events and the ratio of agency and communion increased. Experiences of love and friendship might be especially important, but the results of the life story interviews of the present study are limited.

More research is needed on personality characteristics, cultural differences, the stability of sub types in non-clinical samples and life events that might contribute to paranoid ways of thinking. It is important to stimulate persons scoring high on paranoia to participate in research. As we gain more detailed insights of which factors might contribute to high scores on paranoia, it might be possible to improve therapy and diagnosis. People at risk may be identified earlier. It is important to use qualitative research methods in addition to quantitative ones to achieve a deeper understanding of the complexity and diversity of paranoid ideation.

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