Emotions during reminiscence

# Researching the use of personal pronouns during the recall of sad memories in relation to the degree of alexithymia

Sarah Kettendörfer

s1160923

Bachelor thesis

June 2014

University of Twente

Faculty of Behavioural Sciences

Psychology

Supervisors:

S. D. Bachoe, MSc

Dr. S.M.A. Lamers

**Contents**

# Abstract

*Introduction*: How people express their emotions when they talk about negative experiences has taken on a more prominent role in the field of psychology. Personal pronouns are one of the linguistic aspects which characterize a person's speech. It has been found that the use of personal pronouns is related to a person's psychological state, cognitive processes and inner emotions. The concept of alexithymia is associated with difficulties to express these inner emotions in words. Therefore, this study investigates how the use of personal pronouns is related to the degree of alexithymia during the reminiscence of sad memories. *Method*: The participants are students from the University of Twente and the Saxion University of Applied Sciences in Enschede. The 20-Item Toronto Alexithymia Scale (TAS-20) was administered and the Linguistic Inquiry and Word Count 2007 (LIWC) software was used. 35 participants between the ages of 18 and 39 filled out the TAS-20 questionnaire, recalled 8 memories involving emotional content and gave 3 neutral descriptions (control condition). The nonparametric Wilcoxon signed ranks test and a one factor repeated measures analysis of variance (ANOVA) have been applied to analyze the implemented hypotheses. *Results*: The average alexithymia score was 48.03 with a standard deviation (SD) of 8.78. The number of the first person pronouns "I" and "We" as well as the number of the third person pronouns significantly differed between the sad memories and the control condition. The number of the second person pronoun "You" did not significantly differ between the sad memories and the control condition. No interaction effects between the degree of alexithymia and the use of the different types of personal pronouns were found. *Discussion/Conclusion*: The first person pronoun "I" and the third person pronouns played an important role when people were talking about sad memories. The first person pronoun "We" was used more often during neutral descriptions than during the recall of sad memories. People used the second person pronoun "You" to an equal amount when they recalled sad memories and when they gave neutral descriptions. Furthermore, the degree of alexithymia was not related to the use of the first, second and third person pronouns during the reminiscence of sad memories.

## Samenvatting

*Inleiding*: De manier waarop mensen hun emoties uiten tijdens het praten over negatieve herinneringen is een grotere rol gaan spelen in de wereld van de psychologie. Het gebruik van persoonlijke voornaamwoorden is een linguïstisch aspect dat het spraakvermogen van een persoon kenmerkt. In diverse onderzoeken is aangetoond dat het gebruik van persoonlijke voornaamwoorden samenhangt met de psychologische gesteldheid, cognitieve processen en innerlijke emoties van een persoon. Het concept van alexithymie is geassocieerd met het als moeilijk ervaren om innerlijke emoties onder woorden te brengen. De huidige studie onderzoekt hoe het gebruik van persoonlijke voornaamwoorden samenhangt met de mate van alexithymie tijdens het ophalen van verdrietige herinneringen. *Methode*: De deelnemers zijn studenten van de Universiteit Twente en de Saxion Hogeschool in Enschede. De 20-Item Toronto Alexithymia Scale (TAS-20) is afgenomen en er werd gebuikt gemaakt van de Linguistic Inquiry and Word Count 2007 software (LIWC). 35 deelnemers tussen 18 tot 39 jaar hebben de TAS-20 vragenlijst ingevuld, 8 emotionele herinneringen opgehaald en 3 neutrale beschrijvingen gegeven (controle conditie). Met behulp van de nonparametrische Wilcoxon-rangtekentoets en het één factor model-herhaalde meetingen variantie analayse (ANOVA) werden de opgestelde hypothesen getest. *Resultaten:* De gemiddelde alexithymie score was 48.03. met een standaar deviate van (SD) 8.78. Het gebruik van de ik-vorm, van de wij-vorm en de verwijswoorden (hij, zij, ze ezv.) verschilde significant tussen de verdrietige herinneringen en de controle conditie. Het gebruik van “je” verschilde niet significant tussen de verdrietige herinneringen en de controle conditie. Er is geen interactie effect gevonden tussen de mate van alexithymie en het gebruik maken van verschillende persoonlijke voornaamwoorden. *Discussie*: De ik-vorm en de verwijswoorden (hij, zij, ze ezv.) waren van belang als mensen over verdrietige herinneringen praatten. De wij-vorm werd vaker gebruikt als neutrale beschrijvingen gegeven worden dan tijdens het ophalen van vedrietige herinneringen. Mensen gebruikten “je” even vaak tijdens neutrale beschrijvingen en tijdens het ophalen van verdrietige herinneringen. Verder bleek de mate van alexithymie niet samen te hangen met het gebruik maken van de verschillende persoonlijke voornaamwoorden tijdens het ophalen van verdrietige herinneringen.

# Introduction

The following study aims to research the verbal expression of negative emotions during reminiscence in relation to the concept of alexithymia. In general, it is fascinating that people express their feelings in conversations almost every day, but little attention is paid to what they say and why they use specific words to do so. Literature from Pennebaker, Mehl and Niederhoffer (2003) shows that a person's inner emotions, psychological state and cognitive processes are related to the use of personal pronouns. For example, the use of personal pronouns in a sentence like "I felt very sad when he told me that he does not love me" gives important information about the speaker. In this example it becomes obvious that the speaker relates the inner emotion of sadness to himself/herself, reveals that he/she is the one who is in a specific state (sadness) and explains the involvement of others. Pennebaker, Mehl and Niederhoffer (2003) state that there is uncertainty about the psychological meaning of the use of personal pronouns. This indicates that the role which personal pronouns might play in a psychological context is not fully understood yet. These aspects give good reason to further explore the nature of this topic. Although emotional expression through verbal behavior has an adaptive function and is inherent to human behavior, people with alexithymia are not able to express their inner feelings in words (Salovey & Mayer, 1990). The present study investigates the use of personal pronouns when people talk about negative memories involving sadness. Furthermore, this study aims to verify how this verbal behavior during reminiscence can be observed in relation to the degree of alexithymia. The necessity to conduct this study is related to the fact that there are significant positive effects when people are able to express their emotions (improved well-being, health status etc.) through talking about negative memories (Murray & Segal, 1994). It can be suggested that the ability and the act of expressing emotions itself might play a role in the assimilation of experiences and enhanced well-being. These aspects point to the problem that there is little psychological literature available which focuses on how people differ in their ability to express emotions verbally and how people express emotions in general (Salovey & Mayer, 1990). This thesis investigates two central aspects: 1) the use of personal pronouns when people talk about negative memories involving sadness and 2) how the use of personal pronouns is related to the degree of alexithymia during reminiscence.

## Narrative Psychology and Reminiscence

People can understand and express their emotions about positive and negative life events by connecting them in the form of a story (self-narrative). This process is the central concept of Narrative Psychology (Pennebaker & Seagal, 1999). According to Crossley (2000) Narrative Psychology is "an attempt to study the language, stories and narratives which constitute selves and the implications and permutations of those narratives for individuals and societies. The experience of the self takes on meaning only through

specific linguistic, historical and social structure" (p.21). A "good" self-narrative contains a story goal and an orderly organization of events relevant to that goal. Research in Narrative Psychology focuses on how people write or talk about negative life experiences. It is shown that people who talk about their emotional experiences show, relative to talking about neutral topics (neutral descriptions) an improvement in their physical and mental health. Furthermore, it became apparent that talking about emotional events, rather than neutral topics, was associated with reduced doctor consultations (Pennebaker, 1997). It is also found that talking about traumas with a therapist has beneficial effects for the person him/herself (Pennebaker & Seagal, 1999).

Several studies have been conducted to research the effects of talking about aversive experiences for war victims, clients and people in general. The outcomes of these studies reveal that through talking, people were able to work through their past experiences, changed their way of thinking about these events and showed positive progress in therapy (Fussel, 2002; Pennebaker & Seagal, 1999). Furthermore, it was found that the inability to express emotions can minimize the likelihood to come to terms with a negative experience in the past (Fussel, 2002).

There are three possible explanations why talking about emotional past experiences might influence a person's health. Firstly, talking about personal experiences may enhance a person's awareness of their health and encourages them to rethink their behavior. Secondly, talking about emotional experiences contributes to a person's self-expression. Thirdly, the conversion of emotions into words enhances the person's integration of feelings and thoughts. The person thinks about the trauma in a more organized way which enables him/her to create a self-narrative and give meaning to life events. This means that people were able to organize their past experiences in a meaningful way, to understand what happened to them and finally got over it (Pennebaker & Seagal, 1999).

When people recall their past experiences they engage in a natural and spontaneous process called reminiscence. People become conscious of these life events and particularly of unresolved conflicts which are often related to negative emotions. Reminiscence can enable people to understand their experiences in a coherent and meaningful way. Furthermore, it is known that especially the occurrence of negative life events induce people to a more elaborate recall than positive life experiences (Bohlmeijer, 2007).

With regard to the present study it is of importance that talking about aversive life experiences has positive therapeutic effects and that the occurrence of these events prompts people to talk detailed about them (Bohlmeijer, 2007; Pennebaker & Seagal, 1999).

### The negative emotion of sadness

Negative emotions include among others fear, distress, anger, disgust, sadness or frustration (Fredrickson, 2003; Kopp, 1989; Lee, Narayanan & Pieraccini, 2001). Furthermore, they are often referred to as "bad

emotions", because their occurrence makes people upset, unhappy and they are related to health problems (Solomon & Stone, 2002). The experience of negative emotions can manifest itself through a tense body posture, crying, shouting and physiological reactions (changes in heart rate etc.) (Kopp, 1989).

The main interest of this study is to investigate the negative emotion of sadness. The inhibition of an emotion such as sadness has been considered as an important cause of pathology, impaired cognitive performance and to prevent relief of a negative experience. By not expressing emotions people may compromise their ability to adapt their behavior to environmental challenges. For example, if someone restraints from showing sadness by mistreatment of someone else, his or her treatment is unlikely to become better. The element of importance is the communicative function of emotional expression in interpersonal relationships. The recognition, interpretation and expression of other people's emotions as well as the own enables the person to respond adaptively in various situations. With respect to these aspects expressive therapies focus on conscious awareness and emotional expression as the main element of therapy (Gross & Levenson, 1997). Contrary to that, a person benefits from emotional expression because it helps the person to adapt to negative experiences and to get past them. Furthermore, expressed sadness can motivate to take action against adverse future events, to rethink someone's life style and elicit help from friends or family. The expression of sadness thus has benefits for the person's well-being (Henretty, Levitt & Mathews, 2008).

Examples of memories related to the experience of sadness are problems in personal relationships (family, friends, partner etc.), loneliness or achievement failures (work overload, stress etc.) (Nelson & Horowitz, 2001). People can experience sadness about themselves in a given situation or sadness for others. Repressed sadness can perpetuate itself and thus be unproductive for the person (for example inhibiting daily functioning). Despite the unpleasant feeling when talking about sad events people still feel a strong need to talk and express this emotion, because they believe it is helpful (for example to get past negative experiences) (Henretty, Levitt & Mathews, 2008).

## The verbal expression of negative emotions and the use of personal pronouns

In general people can express their emotions through language (for example saying that something makes him/her sad). The verbal expression of emotions can provide the listener with further information about the triggers, actual experiences or the cognitions behind that emotional expression (for example the reason why someone is sad). Furthermore, talking about inner experiences reveals details which enable the listener to understand what a person has on his or her mind. This enables the listener to interpret an emotion such as sadness more precisely (Fussel, 2002; Meganck, Vanheule, Inslegers & Desmet, 2009). During psychotherapy the client's verbal expression of emotions is a method to work through negative life events. It has been found that therapists sometimes fail to identify the verbal cues of these expressed

emotions and interpret them incorrectly. In this case the client's mental health has been compromised and less improved (Iwakabe, Rogan & Stalikas, 2000). The accurate detection and interpretation of the client's emotional expression is crucial to the client's positive progress in therapy, because it enables him/her to assimilate these emotions (Iwakabe, Rogan & Stalikas, 2000; Fussel 2002). When people vocalize their emotions, they learn through the observation of others and their reactions how different emotions can be expressed (Salovey & Mayer, 1990). Zijlstra, Middendorp, Meerveld and Geenen (2005) show that the words which people use can provide information about their psychological and social functioning. Furthermore, they state that the thoughts and emotions of people who experience incidents such as the terrorist attack 9/11 can be recognized in their choice of words.

It has been found that health improvement is connected to the use of personal pronouns ("I, them, her"). Personal pronouns refer either to the person him/herself or to other people (Meganck, Vanheule, Inslegers & Desmet, 2009). They can be further classified and correlated to psychological states. First person singular pronouns ("I, me, mine") are correlated to depression and emotional information. First person plural pronouns ("We, us, our") are related to feelings such as detachment and social connection to a group. Second person pronouns ("You, yours") are correlated to social status. Third person singular pronouns ("She, her, him") are related to social interest and social support. Third person plural pronouns ("They, theirs") are correlated to social interest and out-group awareness (Tausczik & Pennebaker, 2010). Third person pronouns thus give information about a person's social network. Furthermore, having intimate relationships to others enhances a person's health (Berkman, 1995). In general the use of first person pronouns indicates attention on the self, whereas the use of second and third person pronouns indicates attention to other people (Chung & Pennebaker, 2007). How people use personal pronouns thus gives information about their degree of self-centeredness, social engagement and identity (I vs. We) (Pennebaker, Mehl & Niederhoffer, 2003). An overview of the different types of pronouns is given in Table 1.

One main interest of the present study is to figure out how often different types of personal pronouns are used during the reminiscence of sad memories. This idea is based on literature suggesting that the use of first person pronouns ("I and We") is found to be related to a high degree of self-centeredness, self-involvement, illness, depression, trauma experience and physical/emotional pain (Chung & Pennebaker, 2007; Murray & Segal, 1994; Pennebaker, Mehl & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). Contrary to that the use of second and third person pronouns indicates attention to other people and less self-centeredness (Chung & Pennebaker, 2007). This leads to the suggestion that people might use fewer second and third person pronouns when they talk about negative memories, because they are more focused on themselves. The fact that some people are not able to verbally express their emotions shifts the interest to the concept of alexithymia (Salovey & Mayer, 1990).

Table 1

*Categories of the different types of personal pronouns*

| Category | Examples |
|---|---|
| Personal pronouns | |
| First-person singular | I, my, me, mine, myself |
| First-person plural | We, us, our, ours, ourselves |
| Second person | You, your, yours, yourself |
| Third-person singular | She, her, hers, herself, him, he, his, himself |
| Third-person plural | They, their, theirs, them, themselves |

*Tausczik and Pennebaker, 2010.*

## Alexithymia

Alexithymia is characterized by a difficulty in identifying feelings, a difficulty in describing feelings to others and externally oriented thinking (Wagner & Lee, 2008). Furthermore, alexithymia can be seen as a dimensional (different degrees or levels of alexithymia) rather than as a dichotomous construct (Ogrodniczuk, Piper & Joyce, 2005). It has been first described as including an externally oriented speech when talking about events or other people (operative thinking). This external style of talking is characterized by references to objective facts, instead of introspecting about own or other person's feelings during a specific event. Furthermore, alexithymia can be defined as a psychological inability to evaluate, identify and verbally express emotions when talking about experiences (Guttman & Laporte, 2002). Related to that, alexithymia is associated with an absence of emotion words. Alexithymia has been considered as a clinical phenomenon, but it is not clear whether it can be recognized as a personality trait or as acquired due to negative life experiences. The term "secondary alexithymia" refers to this obtained defense strategy which the person developed as a reaction to negative memories in order to handle the stress caused by these events (Guttmann & Laporte, 2002). Related to that it has been discovered that people who experience traumas or similar incidents (for example assault, child abuse or car accidents) show a higher degree of alexithymia (Lumley, 2000; Guttman & Laporte, 2002). This fact is supported by Guttmann and Laporte (2002) who found in their study that high levels of emotional distress are related to alexithymia. Some studies used cut-off scores in order to determine the prevalence of alexithymia (Mason, Tyson, Jones & Potts, 2005). Mason, Tyson, Jones and Potts (2005) point out that it is not known how culturally appropriate a specific cut-off score is and that cultural variation may play a role in determining the prevalence of alexithymia. Alexithymia rates appear to be elevated in patients with eating disorders (anorexia or bulimia), depression, somatoform disorders, substance abuse and posttraumatic

stress disorders (Corcos, Guilbaudb, Speranzaa, Paterniti, Loas, Stephan & Jeammet, 2000; Mattila, Salminen, Nummi & Joukamaa, 2006; Taylor, 1984). Several studies show that higher rates of alexithymia are associated with male gender, poor health, depression, being older and low educational status (Lane, Sechrest & Riedel, 1998; Levant, 1998; Mattila, Salminen, Nummi & Joukamaa, 2006; Pasini, Delle Chiaie, Seripa, & Ciani, 1992). Studies conducted in western countries show that seven to eighteen percent of the general population can be characterized as exhibiting higher degrees of alexithymia (Kokkonen, Karvonen, Veijola, Läsky, Jokelainen, Järvelin & Joukamaa, 2001; Loas, Fremaux, Otmani & Verrier, 1995, Parker, Taylor, & Bagby, 1989).

In general people with higher degrees of alexithymia show a deficiency in the perception, recognition and reaction towards their own emotions and are not able to express these to others through words (affective awareness) (Salovey & Mayer, 1990; Wagner & Lee, 2008). Furthermore, their thought processes are more externally oriented and less internally ensued from a reduced imaginative capacity (operative thinking) (Wagner & Lee, 2008). It has also been suggested that the absence of verbal emotional expression is related to the fact that emotions within a person with higher degrees of alexithymia are not well differentiated and thus not really known and understood by the person. This indicates that the encoding and transformation of emotional information might be impaired in these people (Lane, Sechrest, Riedel, Weldon, Kaszniak & Schwartz, 1996).

People with higher degrees of alexithymia tend to describe their emotions in rudimentary terms (simple words) and show difficulties in finding the appropriate words for emotions (Lesser, 1981). A study conducted by Meganck, Vanheule, Inslegers aand Dismet (2009) found the following results considering an alexithymic's verbal expression: Firstly, when persons with higher degrees of alexithymia talk about others, they do not show real awareness of these social interactions and do not talk about it vividly. Secondly, individuals with higher degrees of alexithymia showed enhanced externally oriented thought processes and made more references to others when talking. The authors concluded that the inability to have access to own emotional experiences, which is characteristic for alexithymia, might manifest itself in a higher frequency of references to other people. If and in what way people with different degrees of alexithymia make references to other people can be recognized in their use of personal pronouns. One main interest of the present study is to investigate how the use of personal pronouns is related to the degree of alexithymia. Literature shows that people with higher degrees of alexithymia lack understanding, perception and recognition of their own emotional status. This leads to the suggestion that they might use fewer first person pronouns, because they might be less self–centered and less self–involved (Salovey & Mayer, 1990; Wagner & Lee, 2008). Furthermore, people exhibiting higher degrees of alexithymia often make references to others when talking about events. Based on these findings and the suggestion made earlier, the current study focuses also on how the use of second and

third person pronouns is related to the degree of alexithymia (Meganck, Vanheule, Inslegers & Desmet, 2009).

Through researching the degree of alexithymia in relation to the use of personal pronouns, interventions such as the Emotion Focused Therapy (EFT) could be improved. During EFT clients learn to make sense of the experiences they find confusing and hard to understand and to articulate their emotions in language (Greenberg, 2010). Here, it is of importance how flexible people use personal pronouns, because this ability enables them to cope with their emotional experiences (Pennebaker, 2011). Furthermore, therapeutic guidance for emotional disclosure may enhance the patient's understanding and expression of emotions (Lumley, 2004). By knowing how the degree of alexithymia might be related to the use of personal pronouns therapists can apply this knowledge on verbal expression during therapy.

Among the negative consequences for the person having high degrees of alexithymia is a deficit in the daily social functioning such as not being able to understand and adequately interpret own and other people's emotions (Salovey & Mayer, 1990). The deficit in processing and mentally representing emotions leaves the person unable to regulate affect and their personal emotions. This in turn makes the person more susceptible to psychological and somatic symptoms (for example depression etc.) (Mattila et al., 2006). Ogrodniczuka, Pipera and Joyce (2005) state that alexithymia has negative effects on the outcome of psychotherapy. They suggest that the difficulty in communicating feelings and the externally oriented thinking of a patient can trigger negative reactions from the therapist which in turn leads to a poor result of their therapy. Patients with higher degrees of alexithymia undergoing therapy are judged as boring and frustrating, because of their monotonous references to external facts. In a therapeutic context, having high degrees of alexithymia may has negative consequences such as causing the therapist to feel distracted, becoming less empathic, frustrated, desperate and even hopeless. The patient's "failure" to interact on an emotional basis with their therapist has adverse effects for their therapy. This "failure" combined with the therapist's inability to respond appropriately to the verbal behavior of the patient can lead to the rejection for further treatment (Ogrodniczuka, Pipera & Joyce, 2005).

## Present study and research questions

The conducted research is of great scientific relevance, because it investigates the concept of alexithymia, the use of personal pronouns and the recall of sad memories. Former research did not investigate these topics in relation to each other. In the present study an experiment was conducted where the verbal expression during the reminiscence of two sad memories was investigated. A control condition, consisting of three neutral descriptions, was included in the experiment in order to make reliable statements about

the findings in the sad memories. This study aims to investigate the verbal expression (personal pronouns) of people in relation to alexithymia based on the following research question:

- *How is the use of personal pronouns related to alexithymia when negative memories involving sadness are retrieved?*

Based on the literature, several suggestions have been made and the expected relations are formulated in hypotheses. Considering the fact that relations between personal pronouns and negative memories have been found the first sub-question will focus on how often different personal pronouns are used during the recall of sad memories. Besides that, an answer to the research question can be given by testing how the use of each personal pronoun is related to the degree of alexithymia. Three sub-questions have been implemented to give an answer to the research question.

1. *How often do people use personal pronouns when they talk about sad memories?*

    - People will more often use the first person pronoun “I” when they talk about sad memories than when they give neutral descriptions.
    - People will more often use the first person pronoun “We” when they talk about sad memories than when they give neutral descriptions.
    - People will use the second person pronoun “You” less often when they talk about sad memories than when they give neutral descriptions.
    - People will use third person pronouns (“he”, “his”, “they” etc.) less often when they talk about sad memories than when they give neutral descriptions.

2. *How is the use of first person pronouns related to the degree of alexithymia when people talk about sad memories*?

    - The degree of alexithymia is negative related to the use of the first person pronoun “I” when people talk about sad memories than when people give neutral descriptions.
    - The degree of alexithymia is negative related to the use of the first person pronoun “We” when people talk about sad memories than when people give neutral descriptions.

3. *How is the use of second and third person pronouns related to the degree of alexithymia when people talk about sad memories?*

    - The degree of alexithymia is positive related to the use of the second person pronoun "You" when people talk about sad memories than when people give neutral descriptions.
    - The degree of alexithymia is positive related to the use of third person pronouns ("he, his, they etc.") when people talk about sad memories than when they give neutral descriptions.

# Method

In this section the demographic characteristics of the research sample, the materials and the procedure of the experiment will be outlined. Furthermore, information will be given about the applied measures and statistical tools which were used to analyze the collected data.

## Participants

The characteristics of the research sample are illustrated in Table 2. The experiment was conducted with 35 students from the University of Twente and the Saxion University of Applied Sciences in Enschede, the Netherlands. The students had to be Dutch native speakers and at least 17 years old in order to participate in this study. Participants were 15 women and 20 men aged 18 to 39 (M = 23.40). 20 students originated from the faculty of Behavioural Sciences (BS), 4 students from the faculty of Science and Technology (TNW), 4 students from the faculty of Engineering Technology (CTW), 3 student from the faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) and 4 students from the faculty of School of Management and Governance (SMG). 8 neutral descriptions and 1 sad memory were missing in the data set, because some participants did not talk about all required memories and neutral descriptions. For their participation the students received 1.5 Credit via the Sona-system of the University of Twente.

Table 2

*Demographic characteristics of the participants (N = 35)*

| Demographic characteristics | | N | % |
|---|---|---|---|
| Gender | Male | 20 | 57.14 |
| | Female | 15 | 42.86 |
| Age | M | 23.40 | |
| | SD | 3.91 | |
| | Range | 18-39 | |
| Study | BS | 20 | 57.14 |
| | TNW | 4 | 11.43 |
| | CTW | 4 | 11.43 |
| | EEMCS | 3 | 8.57 |
| | SMG | 4 | 11.43 |
| Years of studying | M | 3.68 | |
| | SD | 2.58 | |
| | Range | 1-11 | |

*M = Mean, SD =standard deviation, Range =Difference between maximum and minimum*

## Procedure

The ethical commission of the University of Twente approved the conduction of the experiment. When the participants arrived at the research facility, they were welcomed to the experiment and asked to sign an informed consent form (see Appendix A). Here, the participants were informed that they could stop the experiment at any time they wanted and that their data will be used anonymously in order to respect their right of privacy. It was important to make them aware of their right to withdraw, because of the emotional and personal nature of this study. Furthermore, it was explained that they will be asked to recall different memories. After giving general instructions to the participants, the camera and the voice recorder were turned on. The participant's verbal and non-verbal expressions were only recorded during the recall of the 8 memories and the 3 neutral descriptions. The video recordings were of main importance to other researchers who focused on non-verbal expression. The current study was a part of this research but focused only on verbal expression. Consequently, the videos were not included in the data analysis.

The experiment was divided into two parts. At the beginning of the first part, the participants started the experiment with the qualtrics questionnaire which guided them through the experimental procedure. Via qualtrics the participants were presented with "cue words" in order to signal them which memory had to be recalled and described. In total, the participants were asked to recall 8 memories: two soothing memories, two sad memories, two angry memories and two happy memories and to give 3 neutral descriptions. During the neutral descriptions the participants were asked to describe how they got to the research facility and how their kitchen and living room looks like. The neutral descriptions served as a control condition in order to compare the linguistic characteristics of sad memories with the linguistic characteristics of neutral descriptions. In order to record their non-verbal expressions, the participants were asked to stand in front of a camera while recalling their memories. The camera was set up approximately 1.5 meters in front of the standing participant on one side of the room. The participant stood on the other side of the room, opposite to the camera, and was recorded in a medium shot showing the upper part of the body. The participant's position had been marked with an X on the ground in order to have a standard angle from which the camera could accurately record the person. After the recall of each memory, the participants were instructed to give each memory a title and to write down when this event took place. The participants were also asked to judge each memory considering the following aspects: vividness, importance/significance, happiness, sadness, anger and relaxation (for example how vivid the memory is: *not at all to at all*) on a 6-point Likert-type scales. Before the original experiment started, we gave the participants the opportunity to practice in order to get used to the experimental situation. During this practice the participants first recalled one soothing memory and judged its emotional content (for example how happy the participant felt at that time etc.). Afterwards, the participants recalled a second soothing memory and also judged the emotional content of it. When the

participants did not have any additional questions, the researcher left the room after the recall of the two soothing memories. Now, the participants were asked to give the first neutral description (*"describe how you arrived at the research facility").* After that, the participant recalled the first very sad memory, judged its emotional content and then recalled a second very sad memory and judged also its emotional content. Then the participants gave a neutral description of their kitchen. After that, the participants recalled first one very angry memory, judged its emotional content and then recalled the second very angry memories and judged also its emotional content. The next step was that the participants gave a description of their living room. Finally, the participants recalled the first very happy memory, judged its emotional content and afterwards recalled a second happy memory and judge also here its emotional content. When the participants completed the first part of the experiment, they informed the experimenter. Consequently, the camera and the audio recorder were turned off.

During the second part of the experiment the participants had to answer several demographical questions and to fill in three questionnaires: 20-Item Toronto Alexithymia Scale (TAS-20), Reminiscence Functions Scale (RFS) and the NEO Five-Factor Inventory (personality).

After completing the questionnaires, the participants received a short debriefing on the true nature of the present experiment. In this context, several participants revealed that it took them some time to recall events related to a specific emotion. During the debriefing we explicitly asked them not to reveal any information about the original idea of the experiment to other students. This was of main importance, because the informed students might alter their behavior which in turn would affect our results. The whole experiment took in total 60 to 90 minutes. Transcriptions of the voice recordings were made and afterwards analyzed with the Linguistic Inquiry and Word Count 2007 software (LIWC).

## Materials

The audio data were collected with a voice recorder placed next to the laptop, recording the participant's recall of memories during the whole experiment.

In the three questionnaires the 20-Item Toronto Alexithymia Scale (TAS-20) was used in order to measure the degree of alexithymia. The 20-Item Toronto Alexithymia Scale assesses the degree of alexithymia in clinical and research practice and contains three factors (subscales): difficulty identifying feelings, difficulty describing feelings and externally oriented thinking. The self-report scale contains 20 items which are rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The first factor "difficulty identifying feelings" consists of seven items. An example is item 1: *''I am often confused about what emotion I am feeling''*. The second factor "difficulty to describe feelings" consists of five items. An example is item 4: "*I am able to describe my feelings easily"*. The third factor

"externally oriented thinking" contains eight items. An example is item 5:*''I prefer to analyze problems rather than just describe them*''. In this study a Dutch version of the TAS-20 had to be filled out by the participants. Taylor, Bagby and Parker (2003) concluded in their article that there is strong support for the generalizability, reliability and factorial validity of the TAS-20 across various cultures and languages. The original English version of the TAS-20 shows a Cronbach's alpha coefficient of .86. The Cronbach's alpha coefficient of the Dutch version of the TAS-20 is for student populations .79 and for "normal" adult populations .80 (Taylor, Bagby & Parker, 2003). The Dutch version, which was used in the present study, shows a Cronbach's alpha coefficient of .75. Parker, Taylor and Bagby (2003) conclude in their article that the TAS-20 accurately reflects the three facets of the alexithymia concept in both men and women. Furthermore, they state that the three factors show internal reliability and that gender, education and age account for small/modest variation in the factor scale scores and total scale scores of the TAS-20. For an overview over the items included in the TAS-20 see Appendix B.

The Linguistic Inquiry and Word Count 2007 (LIWC) was used as a text analysis software (Tausczik & Pennebaker, 2010). A study conducted by Pennebaker, Chung, Ireland, Gonzalez and Booth (2007) shows modest results for the reliability and validity. The authors also report an alpha coefficient for the category of personal pronouns of .91. Kahn, Tobin, Massey and Anderson (2007) indicate that the LIWC has strong construct validity. The LIWC is limited in its inability to detect sarcasm and other descriptive styles. Apart from that, the LIWC analysis provides a large data pool of many different linguistic categories. The LIWC searches for standard language categories such as pronouns (first person singular etc.), prepositions or articles, for psychological categories such as positive and negative emotion words, for relativity-related categories such as time or motion and for traditional content categories such as sex, death or home. Furthermore, the dimensions of the LIWC are structured in a hierarchy (Pennebaker, Mehl & Niederhoffer, 2003).

## Data Analysis

The data were analyzed with the Statistical Program for Social Sciences (SPSS) version 20.0. The Shapiro Wilk's test was chosen in order to determine if the research variables and the demographic variables are normally distributed (Shapiro & Wilk, 1965). The demographic variables (gender, age, study, years of studying) were not normally distributed. The research variable TAS-20 (all three sub scales taken together) was normally distributed. The research variable personal pronouns (all types of pronouns) was not normally distributed. An investigation of the graph (box plot) showed that the sample of the TAS-20 scores did not contain any outliers. The sample of the personal pronouns contained outliers. Considering the small sample size it was decided to include the outliers in the data analysis.

The data analysis included two negative memories with a sad content and three neutral descriptions (control condition). The total number of personal pronouns was calculated for the two sad memories and added together. Furthermore, it was counted how often each type of personal pronoun was used when people were talking about sad memories. For example, people used in total 1499 times the first person pronoun “I” when both sad memories were taken together. Similarly, the total number of personal pronouns of the three neutral descriptions was also added together and the repetitiveness of each type of personal pronoun was calculated. Considering the TAS-20 questionnaire, the total scores of the three sub scales have been summed up to a general total score. The means (M) and standard deviations (SD) and ranges of the research variables have been calculated and are represented in Table 3. Here, the ratings of the importance and sadness of both negative memories have been included in order to verify whether the participants judged the sad memories as important and sad. In order to analyze the research question, first it was investigated if people used different types of personal pronouns more or less often when they talk about sad memories than when they give neutral descriptions. Furthermore, it was investigated if the degree of alexithymia was related to the use of first, second and third person pronouns during sad memories.

The first sub-question was investigated with the nonparametric Wilcoxon signed ranks test (one sided). This test was chosen, because the research variable personal pronouns (all types of pronouns) was not normally distributed. The Wilcoxon signed ranks test was used to compare the number of first person pronouns (“I, We”), second person pronouns (“You”) and third person pronouns (“He, they etc.”) used during the recall of the two sad memories with the number of these personal pronouns used during the three neutral descriptions (control condition). The analysis with the Wilcoxon signed ranks test was carried out 5 times. The Wilcoxon signed ranks test provides the possibility to test if the different types of personal pronouns were used more/less often during the recall of the two sad memories than during the three neutral descriptions (one sided). The first analysis with the Wilcoxon signed ranks test was done with all personal pronouns (first, second and third taken together) used during the retrieval of two sad memories as variable one and the use of all personal pronouns during the three neutral descriptions as variable 2. This was done in order to get an overview about the overall number of all personal pronouns used during the recall of the two sad memories and during the three descriptions. The second analysis was conducted with the total number of the pronoun “I” during the recall of the two sad memoires as variable one and the total number of the pronoun “I” during the three neutral descriptions as variable two. The third analysis with the Wilcoxon signed rank test was carried out with the total number of the pronoun “We” during the retrieval of the two sad memories as variable one and the total number of the pronoun “We” of the three neutral descriptions as variable two. The fourth analysis was conducted with the total number of the pronoun “You” during the recall of the two sad memories as variable one and the total

number of the pronoun “You” used during the three neutral descriptions as variable two. The fifth analysis with the Wilcoxon signed ranks test was done with the total number of third person pronouns used during the recall of the two sad memories as variable one and the total number of third person pronouns used during the three neutral descriptions as variable two.

The second and third sub-questions were analyzed with a one factor repeated measures analysis of variance (ANOVA). This model was chosen, because it provides the possibility to investigate any interaction effects between the degree of alexithymia (TAS-20) and the use of the first, second and third person pronouns. The variable TAS-20 was used as the covariate during all steps of the analysis of the second and third sub question. The second sub-question was analyzed in two steps, to test whether there are any interaction effects between the degree of alexithymia and the use of the personal pronouns “I”/”We”. During the first step, the pronoun “I” was chosen as the within-subject factor with two levels: 1) total number of the pronoun “I” of both sad memories and 2) total number of the pronoun “I” of the three neutral descriptions. During the second step, the pronoun “We” was chosen as the within-subject factor with two levels: 1) total number of the pronoun “We” in both sad memories and 2) total number of the pronoun “We” of the three neutral descriptions. For the investigation of the third sub-question, two similar steps were taken, to test whether there are any interaction effects between the degree of alexithymia and the use of the second and third person pronouns. During the first step the pronoun “You” was chosen as the within-subject factor with two levels: 1) total number of the pronoun “You” of both sad memories and 2) total number of the pronoun “You” of the three neutral descriptions. During the second step, the third person pronouns (singular and plural together) were used as the within-subject factor with two levels: 1) total number of the third person pronouns in both sad memories and 2) total number of the third person pronouns of the three neutral descriptions. To determine the significance of the results an alpha of .05 was applied.

# Results

Table 3 represents the means (M), standard deviations (SD) and ranges of the research variables. The alexithymia score ranged from 31 to 66 (M = 48.03; SD = 8.78). The total number of personal pronouns which were used during the sad memories and the neutral descriptions ranged respectively from 17 to 160 (M = 63.00; SD = 33.36) and 4 to 126 (M = 31.57; SD = 24.02). The number of the first person pronoun "I" used during the sad memories ranged from 16 to 99 (M = 42.83; SD = 21.92). The number of the first person pronoun "We" used during the sad memories ranged from 0 to 17 (M = 2.15; SD = 3.18). The number of the second person pronoun "You" which was used during the sad memories ranged from 0 to 44 (M = 5.17; SD = 8.28). The number of the third person pronouns used during the sad memories ranged from 0 to 55 (M = 12.85; SD = 11.59). The number of the first person pronoun "I" used during the neutral descriptions ranged from 2 to 107 (M = 20.83; SD = 19.37). The number of the first person pronoun "We" which was used during the neutral descriptions ranged from 0 to 27 (M = 3.40; SD = 4.73). The number of the second person pronoun "You" which was used during the neutral descriptions ranged from 0 to 18 (M = 5.57; SD = 5.15). The number of the third person pronouns used during the neutral descriptions ranged from 0 to 12 (M = 1.77; SD = 2.93). The sadness and importance rating scores ranged respectively from 1.5 to 6 (M = 4.16; SD = 1.13) and 2 to 6 (M = 3.99; SD = 1.03) for both sad memories.

Table 3

*Descriptives (N = 35)*

| | M | SD | Range |
|---|---|---|---|
| TAS - 20 total score | 48.03 | 8.78 | 35 |
| Total number of personal pronouns (two sad memories): | 63.00 | 33.36 | 143 |
| First person pronoun "I" | 42.83 | 21.92 | 83 |
| First person pronoun "We" | 2.15 | 3.18 | 17 |
| Second person pronoun "You" | 5.17 | 8.28 | 44 |
| Third person pronouns | 12.85 | 11.59 | 55 |
| Total number of personal pronouns (control condition): | 31.57 | 24.02 | 122 |
| First person pronoun "I" | 20.83 | 19.37 | 105 |
| First person pronoun "We" | 3.40 | 4.73 | 27 |
| Second person pronoun "You" | 5.57 | 5.15 | 18 |
| Third person pronouns | 1.77 | 2.93 | 12 |
| Rating of sadness | 4.16 | 1.13 | 4.5 |
| Rating of importance | 3.99 | 1.03 | 4 |

*M = mean, SD = standard deviation, Range = Difference between maximum and minimum*

## Sub-questions and hypotheses

In the following section the results of the data analysis for each sub-question and subsequent hypotheses will be outlined.

*Sub-question 1: How often do people use personal pronouns when they talk about sad memories?*

Table 3 illustrates the means (M), standard deviations (SD) and ranges of the number of the different types of personal pronouns used during both sad memories and during the three neutral descriptions (control condition). An overview of the total number of all types of personal pronouns used during sad memories and in the control condition is given in Table 4. The analysis for sub-question one was carried out with a one sided nonparametric Wilcoxon signed ranks test in order to investigate how often do people use personal pronouns when they talk about sad memories.

When all personal pronouns were added together (first, second and third person) there was a significant difference between the sad memories and the control condition (Wilcoxon signed ranks test: Z = - 4.193, *P* = .000, one sided). In general, more personal pronouns were used during the recall of both sad memories than in the control condition.

The use of the first person pronoun "I" significantly differed between the sad memories and the control condition (Wilcoxon signed ranks test: Z = - 4.111, *P* = .000, one sided). The first person pronoun "I" was used more often during the recall of the two sad memories than in the control condition. The hypothesis that people will more often use the first person pronoun "I" when they talk about sad memories than when they give neutral descriptions was confirmed. With regard to the first person pronoun "We" it was found that its use differed between the sad memories and the control condition (Wilcoxon signed ranks test: Z = - 2.035, *P* = .021, one sided). The first person pronoun "We" was used more often in the control condition than when people were talking about sad memories. The hypothesis that people will more often use the first person pronoun "We" when they talk about sad memories than when they give neutral descriptions was not confirmed.

Considering the second person pronoun "You" it was found that its use did not significantly differ between the sad memories and the control condition (Wilcoxon signed ranks test: Z = - .860, *P* = .195, one sided). The second person pronoun "You" was used to an equal amount during the recall of sad memories and in the control condition. The hypothesis that people will use the second person pronoun "You" less often when they talk about sad memories than when they give neutral descriptions was not confirmed.

It was found that the use of the third person pronouns (He, she, they…etc.) significantly differed between the sad memories and the control condition (a Wilcoxon signed-ranks test: Z = - 4.619, *P* = .000, one sided). The third person pronouns were used more often during the recall of sad memories than in the

control condition. The hypothesis that people will use third person pronouns less often when they talk about sad memories than when they give neutral descriptions was not confirmed.

Table 4

*The total number and percentage of all types of personal pronouns used during the two sad memories (sad memory) and during the three neutral descriptions (control condition)*

| Type of pronoun | Total number of pronouns used | % |
|---|---|---|
| Sad memory | | |
| First person pronoun I | 1499 | 67.98 |
| First person pronoun We | 75 | 3.40 |
| Second person pronoun You | 181 | 8.21 |
| Third person pronouns (singular/plural) | 450 | 20.41 |
| All personal pronouns | 2205 | 100 |
| Control condition | | |
| First person pronoun I | 729 | 65.97 |
| First person pronoun We | 119 | 10.77 |
| Second person pronoun You | 195 | 17.65 |
| Third person pronouns (singular/plural) | 62 | 5.61 |
| All personal pronouns | 1105 | 100 |

*Sub-question 2: How is the use of first person pronouns related to the degree of alexithymia when people talk about memories involving sadness?*

The analysis was conducted with a one factor repeated measures ANOVA in order to investigate if there were any interaction effects between the degree of alexithymia (TAS-20) and the use of the first person pronouns “I” and “We”. With regard to the use of first person singular pronouns, a one factor repeated measures analysis of variance with alexithymia (TAS-20) as the covariate and the first person pronoun “I” as the within-subjects variable (2: sad memories, control condition), showed no interaction effect $F_{(1,33)} = .022$, $P = .884$. The hypothesis that the degree of alexithymia is negative related to the use of the first person pronoun “I” when people talk about sad memories than when they give neutral descriptions has

not been confirmed. With respect to the use of the first person plural pronouns, the interaction effect between the first person pronoun "We" as the within-subjects variable (2: sad memories, neutral descriptions) and alexithymia as the covariate was not significant, $F_{(1,33)} = .013$, $P = .910$. The hypothesis that the degree of alexithymia is negative related to the use of the first person pronoun "We" when people talk about sad memories than when they give neutral descriptions was not confirmed.

*Sub-question 3: How is the use of second and third person pronouns related to the degree of alexithymia when people talk about memories involving sadness?*

The analysis was conducted with a one factor repeated measures ANOVA in order to investigate if there were any interaction effects between the degree of alexithymia and the use of the second and third person pronouns. Considering the use of second person pronouns, a one factor repeated measures ANOVA with alexithymia (TAS-20) as the covariate and the second person pronoun "You" as the within-subjects variable (2: sad memories, control condition), showed no interaction effect $F_{(1, 33)} = .786$, $p = .382$. The hypothesis that the degree of alexithymia is positive related to the use of the second person pronoun "You" when people talk about sad memories than when they give neutral descriptions was not confirmed. With regard to the use of third person pronouns (plural and singular), the interaction effect between the third person pronouns as the within-subjects variable (2: sad memories, control condition) and alexithymia as the covariate was not significant, $F_{(1, 33)} = .402$, $p = .530$. The hypothesis that the degree of alexithymia is positive related to the use of third person pronouns when people talk about sad memories than when they give neutral descriptions has not been confirmed.

With respect to the use of all personal pronouns, a one factor repeated measures analysis of variance with alexithymia as the covariate and personal pronouns in general as the within-subjects variable (2: sad memories, neutral memories), showed no interaction effect $F_{(1, 33)} = .005$, $P = .942$.

# Discussion

The fascination about how people express their emotions during daily conversations and words in general is a topic of narrative psychology. Over the years different researchers such as Pennebaker focused on the exact words people use to describe emotional experiences. Especially, the use of personal pronouns seems to be an indicator of inner emotions, psychological states and cognitive processes (Pennebaker, Mehl & Niederhoffer, 2003). Although emotional expression through verbal behavior has an adaptive function and is inherent to human behavior, people with alexithymia are not able to express their inner feelings in words (Salovey & Mayer, 1990). Personal pronouns can be an indicator of inner emotions. The fact that alexithymia is associated with an inability to express these emotions enhances the interest in the relation between the degree of alexithymia and the use of personal pronouns. Consequently, it can be suggested that the inability to express inner emotions might manifest itself in the use of personal pronouns. The central idea of the present study was to test how the use of personal pronouns is related to the degree of alexithymia during the retrieval of sad memories and to compare this with neutral descriptions (control condition).

Earlier research about the use of personal pronouns in relation to alexithymia included only a limited number of personal pronouns. The current study is an explorative study, because it investigated the use of different types of personal pronouns during the reminiscence of sad memories in relation to the degree of alexithymia. The experiment was conducted with 35 students aged 18 to 39. The present study aimed to investigate the verbal expression (personal pronouns) of people in relation to alexithymia based on the following research question: "*How is the use of personal pronouns related to alexithymia when negative memories involving sadness are retrieved?"* Based on the literature different sub-questions and hypotheses were implemented in order to give an answer to the research question. Considering the use of personal pronouns in general and the relation between personal pronouns and alexithymia, the data analysis revealed expected as well as unexpected outcomes.

## Sub-questions and hypotheses

### *The use of personal pronouns during the recall of sad memories*

It has been investigated if people use different types of personal pronouns more or less often when they talk about sad memories than when they give neutral descriptions. Based on the scientific literature, four hypotheses about the use of personal pronouns during the recall of sad memories have been implemented. Relations which correspond to the literature have been found as well as unexpected results.

In the present study it is found that people used more personal pronouns when they were talking about sad memories than when they gave neutral descriptions. Especially, the first person pronoun "I" and

the third person pronouns seem to have an important role when people were recalling sad life events. People showed a higher tendency to refer to themselves as well as to others when they talked about memories involving emotional pain and sad feelings. The participant's judgments showed that the recalled memories were indeed experienced as sad and important for them. Corresponding to this, literature shows that the first person pronoun "I" indicates attention to the self and is related to experienced emotional pain as well as emotional information (Chung & Pennebaker, 2007; Murray & Segal, 1994; Pennebaker, Mehl & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). Despite the fact that literature pays more attention to the use of the first person pronoun "I", the present study revealed that third person pronouns are also of importance regarding the experience of sad life events. People seem to have an enhanced focus on themselves as well as on others when they recall sad memories. The memories in the present study involved topics such as death or break ups and it became apparent that interactions with other people, during a specific event, were of importance to the participant. For example, a participant said: "my father woke me up and I did not know what was wrong…then he told me that my grandmother died". This indicates that the participant's emotional experience is related to the presence of important others during a specific life event.

The personal pronouns "We" and "You" were not exceptionally important when people talked about sad memories. The participants included the first person pronoun "We" more often when they gave neutral descriptions such as explaining how their kitchen and living room looks like. A study conducted by Tausczik and Pennebaker (2010) indicates that the use of the first person pronoun "We" shows also social connections to others. This outcome is in agreement with the results of the present study, because the majority of participants live together with others (students, friends, parents etc.) which enhances their social awareness. Due to their social connection to their housemates, the participants included them as a "We" in their neutral descriptions. Participants used the second person pronoun "You" almost equally during the recall of sad memories and during neutral descriptions, because they tended to generalize neutral as well as sad topics. For example, a participant said: "In the kitchen you have an oven, you have also a fridge". Another participant said: "that was a day which you will never forget, because it is awful when you have to be in a situation like this", where the "You" is used to generalize someone's sad emotions as emotions which most of the people would have in a similar situation.

The differences in the use of personal pronouns should be researched in more detail, because their use gives information about the speaker's characteristics which are of importance to therapeutic progress. Literature shows that people who use the first person pronoun "I" more often exhibit an enhanced self-focus and involvement with their inner emotions. These characteristics enable them to have access to their inner emotions, which is beneficial for the improvement of their mental well-being. It is also known that people, who use third person pronouns show that they attend to others, are socially interested, have a

social network and appreciate social support (Chung & Pennebaker, 2007; Pennebaker, Mehl & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). Having intimate relationships to important others contributes to a person's health and well-being (Berkman, 1995). People exhibiting a social focus and having a network of relationships may cope better with negative experiences than people without this social focus. In a therapeutically context, the client's use of these pronouns can provide valuable information about mental goings-on, the presence of social resources and emotional awareness.

### *The relation between the use of first person pronouns and the degree of alexithymia*

It has been investigated how the use of personal pronouns is related to the degree of alexithymia when sad memories are retrieved. Based on the scientific literature, it was assumed that the degree of alexithymia is negative related to the use of the first person pronouns "I" and "We".

In the present study the degree of alexithymia was not negative related to the use of the first person pronouns "I" and "We" during the recall of sad memories. These findings do not reflect the outcomes of a study conducted by Meganck, Vanheule, Inslegers and Dismet (2009), where alexithymia was associated with an inability to have access to own emotions and a tendency to make more references to others when talking about experiences. The differences with the results of the current study may be due to differences in the research design between the two experiments. Meganck, Vanheule, Inslagers and Dismet (2009) conducted their study with psychiatric patients and they included besides the TAS-20, the Toronto Structured Interview for Alexithymia (TSIA) from which transcriptions were analyzed with the LIWC. In the present study the sample consisted of students, the TAS-20 questionnaire was the only measure applied to assess the degree of alexithymia and the participants could freely talk about what they associated with sad memories. Furthermore, Meganck, Vanheule, Inslagers and Dismet (2009) also made a difference between individuals with high and low scores on the TAS-20 and TSIA. Contrary to that, the present study did not categorize the participants into two groups based on their TAS-20 total score. This aspect may be another explanation why in this study no relationship between the degree of alexithymia and the use of first person pronouns was found. If a cut-off score is applied, 22 participants exhibit lower degrees, 10 participant's possible degrees and only 3 participants exhibited higher degrees. The distribution of the TAS-20 total scores is probably another aspect which led to other findings about the relationship between the degree of alexithymia and the use of first person pronouns in comparison to the literature. Meganck, Vanheule, Inslagers and Dismet (2009) used the TSIA and analyzed the transcriptions of the participants responses to the questions included in the interview. The current study focused on verbal expression during the recall of sad memories instead of participant's responses to structured questions. The fact that the two studies differ in the topic to which participants were asked to respond can be another explanation why the findings do not correspond. A general aspect which probably

led to different outcomes is the fact that the sample contained relatively few participants in comparison to other studies which have been conducted in this field. Based on these findings it is desired to further investigate the relationship between the degree of alexithymia and the use of first person pronouns in future studies.

### *The relation between the use of second/third person pronouns and the degree of alexithymia*

It has been investigated how the use of second and third person pronouns is related to the degree of alexithymia when sad memories are retrieved. Based on the scientific literature, it was assumed that the degree of alexithymia is positive related to the use of the second person pronoun "You" and the third person pronouns. It was expected that the inability to have access to inner emotions, the decreased self-centeredness and the externally oriented thinking would manifest itself in an enhanced use of second and third person pronouns. No relationships have been found between the degree of alexithymia and the use of second and third person pronouns.

In the present study the degree of alexithymia was not positive related to the use of the second person pronoun "You" and the third person pronouns during the recall of sad memories. Similarly to the second sub-question, the findings of the third sub-questions do not correspond to what was found in the study of Meganck, Vanheule, Inslegers and Dismet (2009). Here, it is also suggested that the differences in the research sample, the applied instruments, the research procedure and the research design between the two experiments may explain why other results have been found in the current study. In general, it became apparent that third person pronouns were of importance when people talked about sad life events. Despite that, it is found that the degree of alexithymia was not related to the use of third person pronouns during the recall of sad memories. Contrary to Meganck, Vanheule, Inslegers and Dismet (2009) the present study did not investigate plural and singular third person pronouns separately, because the LIWC 2007 summed these up in one category. Therefore, it was not verified if the degree of alexithymia may be positive related to either singular or plural third person pronouns. Based on these findings it is desired to further investigate the relationship between the degree of alexithymia and the use of second and third person pronouns in future studies.

Overall, it became apparent that personal pronouns were used more often during the recall of sad memories than during neutral descriptions, but it is found that the degree of alexithymia was not related to the use of personal pronouns when people were talking about sad life events.

## Strengths and Limitations

There are several strengths of this study. The first strong point is that the sample shows variation with respect to gender and study. In total 15 female students and 20 male students were included in the

experiment. Furthermore, not only psychology students but also students from other faculties participated in the present study. A second strong point is that the participants were free to talk about what event came to their mind considering the cue word "very sad memory". It is known that this kind of free association enhances the process of talking about and describing someone's emotions (Popovic & Boniwell, 2007). The third strong point is that this study covers a broader field of research. Three different research variables are investigated in relation to each other. Former research focused only on one research variable or one aspect and related only two variables with each other. The combination of the research variables in the current study was not considered by any other study. A fourth strong point is that the participants had the opportunity to practice the recall of memories during a practice phase before the actual experiment begun. Here, it was made sure that the participants clearly understood what was expected of them. Uncertainties, misunderstandings and other concerns of the participants were discussed and solved during this practice phase. Furthermore, the participants had the opportunity to get used to the experimental situation. In order to prevent any mistakes, the participants were supervised by the experimenter during this practice phase. Here, the participants were made aware of possible mistakes and instructions were given in order to "correct" them. Examples of such mistakes are that participants do not look into the camera, do not talk about a specific memory in a detailed manner or do not talk approximately 3 minutes. This instruction phase contributed to a rich data pool.

Besides the strong points, there are also limitations of this study. These methodological limitations can be a possible explanation why some suggestions from the literature have not been found and why the outcomes differed from other studies. The first limitation is that in comparison to other studies in this field, the sample of the present study contains relatively few participants. The small sample size decreases the validity and reliability of the results. Furthermore, no distinction has been made between people with higher and lower degrees of alexithymia. For future research it is recommended to increase the sample size and to investigate the use of personal pronouns of people with higher as well as of people with lower degrees of alexithymia and to compare these two groups with each other. It follows that different relations between the degree of alexithymia and the use of personal pronouns can be investigated more precisely in future studies. The second limitation concerns the presence of a camera and audio recorder. The participants know that their video as well as audio data will be used by the experimenters. This awareness may lead to an uncomfortable feeling and thus may affect the participant's reaction. The participant's verbal and non-verbal behavior may have been altered. It is recommended that future studies focusing on verbal expression should record only the voice of the participants to rule out any effects the camera might have on the participant's verbal behavior (for example inhibition). Consequently, the results of these studies can be complemented with research that investigates nonverbal behavior, alexithymia and reminiscence. A third limitation is the bias with respect to the transcriptions of

the audio recordings. The fact that the audio recordings have been transcribed by experimenters who are not native speakers in Dutch causes problems. It is likely that the experimenters misunderstood what a participant said or misinterpreted specific words (for example, the word gasfornuis (oven) was not known by every experimenter). This probably led to mistakes and words were left out in the transcriptions. In future studies native speakers should transcribe audio recordings of participants who speak the same language in order to minimize the risk of data loss. The fourth limitation concerns the fact that 14 out of 35 participants were psychology students. It can be expected that psychology students are familiar with questionnaires such as the TAS-20, REF or NEO-FFI. It is likely that they have knowledge about the aims of these tests. This can get the students to give socially desirable answers corresponding with what they expect the experimenter would like to hear or what would be an appreciated answer. It is recommended that future research in this field randomly selects students from different universities and studies. In this way the possibility that the students will have some background knowledge about the applied tests can be minimized. Furthermore, it is desired to randomly select participants from different age groups, nationwide and social classes. This enhances the generalizability of the study. The fifth limitation is that this study did not include a motivation measure to verify if the participants gave serious answers to the statements included in the TAS-20 questionnaire. It is recommended to include a motivational questionnaire to investigate whether the answers can be considered reliable. Another limitation of the present study is that some participants did not recall all required memories during the experiment. During the debriefing period it became apparent that many participants experienced difficulties to recall soothing memories and past events related to one specific emotion (for example to recall a sad memory which is at least one year old). It is recommended to give more detailed instructions to participants of the study about emotion related memories. Furthermore, experimenters should accentuate that the participants can take as much time as they need to recall a specific memory and that they are not restricted to a time frame. Furthermore, it should be emphasized that they should use or follow the example questions (“where were you?” or “what did you do?”) if they do not know what to say.

### Recommendations for future research and the professional practice

Based on the limitations of the present experiment several recommendations can be made with respect to future studies in this field and the professional practice. The fact that no relationship between the degree of alexithymia and the use of personal pronouns is found implies possible changes for future research with regard to the experimental design.

The present study investigated the use of personal pronouns during the reminiscence of sad memories. This narrow focus limits the conclusions and generalizations based on the research results. Therefore, it is not possible to make statements about the use of personal pronouns during other negative

memories (for example angry) or positive memories based on the findings in this study. Future research should investigate the use of personal pronouns during the reminiscence of different types of negative and positive memories. This enables researchers to verify whether the use of personal pronouns differs between negative and positive memories. Furthermore, this study made no distinction between the content of the two sad memories. The two memories differed in their sad topics (death, break ups, family problems etc.) but were interpreted as sad memories in general. The use of personal pronouns has not been investigated with respect to the different topics. It is recommended that future studies compare the use of personal pronouns between topics. For example, it can be verified how people use personal pronouns when they talk about relationship break ups in comparison to when they talk about loss (for example death of a beloved one). Therefore, conclusions can be made about how relevant different types of personal pronouns might be for different topics. The first person pronoun "I" and the third person pronouns were important when people were talking about sad memories. With respect to that it is recommended that future research investigates the use of these pronouns with regard to different negative and positive memories as well as topics. It is especially important to conduct more research about the use of third person pronouns, because no extensive studies have been done about how people use this type of pronoun. Due to the limited possibilities at the University the concept of alexithymia could not be investigated sufficiently. It is desired that future research conducts the same experiment with a group of participants exhibiting higher degrees of alexithymia and a group of participants exhibiting lower degrees. For example, patients who are diagnosed with higher degrees of alexithymia (based on the cut-off score) could be included in this experiment. Through categorizing the participants into two groups it is possible to investigate if higher or lower degrees of alexithymia show a specific relation to the use of different types of personal pronouns. With respect to this research design it is also recommended to test whether the participants have other mental or physical conditions, because this may affect the results. It is known that higher degrees of alexithymia are related to several other factors such as mental illness, gender or trauma experiences.

Considering the professional practice of psychology it is recommended to pay more attention to how people use personal pronouns when they talk about sad memories, because their use gives important information about their mental goings-on. The present study shows that the first person pronoun "I" and the third person pronouns were of main importance during the recall of sad life events. Through paying attention to how frequently their clients use these pronouns, therapists can gain information about their client's degree of self-involvement, socially engagement, inner emotions and cognitive processes (Berkman, 1995; Pennebaker, Mehl & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). These aspects are of importance, because therapists can identify whether their clients are aware of their own emotions and how much social support they have. Therapists can apply this knowledge about their client's

resources to improve their therapy. For example, the fact that a client almost never refers to others (third person pronouns) can induce the therapist to check how the client's social network looks like and to ask questions about this. Through this the therapist can work together with the client to improve his or her social connections. This idea is supported by Berkman (1995) who suggested that having intimate relationships to important others contributes to a person's health and well-being. Furthermore, if clients refer frequently to others instead of to themselves when talking about negative life events the therapist recognizes that the client is part of a social network. Here, it is still important that therapists also pay attention that their clients refer to themselves (through the use of "I") in order to become aware of their own person and inner feelings. By recognizing their client's tendency to avoid talking about him/herself therapists can practice with clients to actively focus on themselves and to talk about their emotions. For example, if a client says: "when my father died, my mother was sad…" ,the therapist can encourage the client to think about his/her feelings in that situation and to rephrase the sentence: "when my father died, I was sad…".Therefore, therapists enhance the client's self-focus and work with him/her through negative life experiences more efficiently. Furthermore, therapeutic guidance for emotional disclosure may enhance the client's understanding and expression of emotions (Lumley, 2004). Consequently, clients can assimilate their negative experiences, get past them and move on with their life. This in turn has positive effects for their mental and physical health. Regarding the fact that the present study did not find any relation between the degree of alexithymia and the use of personal pronouns, no recommendations for alexithymia in the professional practice of psychology can be made.

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## Appendix A. Informed Consent

# GEÏNFORMEERDE TOESTEMMING

**Het ophalen van herinneringen**

Ik, …….. (*naam proefpersoon)*

stem toe mee te doen aan een onderzoek dat uitgevoerd wordt door

Jasmin Plesse, Nikka Golena, Ylva Gerke, Lisa Stahlkopf, Sarah Kettendörfer en Sarah Kurney

Ik ben me ervan bewust dat deelname aan dit onderzoek geheel vrijwillig is. Ik kan mijn medewerking op elk tijdstip stopzetten en de gegevens verkregen uit dit onderzoek terugkrijgen, laten verwijderen uit de database, of laten vernietigen.

*De volgende punten zijn aan mij uitgelegd:*

1. Het doel van dit onderzoek is inzicht te verkrijgen in hoeverre herinneringen opgehaald worden.
2. Het onderzoek duurt ongeveer 60 minuten.
3. Aan het begin wordt een vragenlijst over de demografische gegevens afgenomen. Daarna zal aan mij gevraagd worden een blije, een verdrietige/boos en een neutrale herinneringen op te halen en te vertellen. Daarnaar worden drie vragenlijsten afgenomen die telkens persoonlijkheid (NEO-FFI), alexithymie (TAS) en het omgaan met herinneringen (RFS) meten.
4. Je mag altijd stoppen als je niet op je gemak voelt of een vraag niet wilt beantwoorden.
5. Er behoort geen stress of ongemak voort te vloeien uit deelname aan dit onderzoek.
6. De gegevens verkregen uit dit onderzoek zullen anoniem verwerkt worden en kunnen daarom niet bekend gemaakt worden op een individueel identificeerbare manier.
7. De onderzoeker zal alle verdere vragen over dit onderzoek beantwoorden, nu of gedurende het verdere verloop van het onderzoek.

Handtekening onderzoeker: …… Datum: ……..

Handtekening proefpersoon: …… Datum: ……..

## Appendix B. Omgaan met emoties - Toronto Alexithymia Scale-20

Geef aan in hoeverre u het eens of oneens bent met de volgende uitspraken door het betreffende cijfer te omcirkelen. U dient per uitspraak één antwoordmogelijkheid te omcirkelen.
Omcirkel het cijfer
1 als u het erg oneens bent met de uitspraak
2 als u het nogal oneens bent
3 als u het niet oneens bent, maar ook niet eens
4 als u het nogal eens bent
5 als u het erg eens bent met de uitspraak

| | | | | | |
|---|---|---|---|---|---|
| Ik ben vaak in verwarring over wat ik voel | 1 | 2 | 3 | 4 | 5 |
| Ik vind het moeilijk de juiste woorden voor mijn gevoelens te vinden | 1 | 2 | 3 | 4 | 5 |
| Ik heb lichamelijke gevoelens die zelfs artsen niet begrijpen | 1 | 2 | 3 | 4 | 5 |
| Ik kan mijn gevoelens gemakkelijk beschrijven | 1 | 2 | 3 | 4 | 5 |
| Ik vind het prettiger problemen te analyseren dan ze alleen maar te beschrijven | 1 | 2 | 3 | 4 | 5 |
| Wanneer ik van streek ben, weet ik niet of ik verdrietig, bang of boos ben | 1 | 2 | 3 | 4 | 5 |
| Mijn lichamelijke gevoelens stellen me vaak voor raadsels | 1 | 2 | 3 | 4 | 5 |
| Ik vind het prettiger dingen gewoon te laten gebeuren, dan te begrijpen waarom ze zo gebeuren | 1 | 2 | 3 | 4 | 5 |
| Ik heb gevoelens die ik helemaal niet kan thuisbrengen | 1 | 2 | 3 | 4 | 5 |
| Het gaat erom, dat je je bewust bent van je gevoelens | 1 | 2 | 3 | 4 | 5 |
| Ik vind het moeilijk te beschrijven wat ik vind van andere mensen | 1 | 2 | 3 | 4 | 5 |
| Men zegt mij dat ik mijn gevoelens meer moet beschrijven | 1 | 2 | 3 | 4 | 5 |
| Ik weet niet wat er zich binnenin mij afspeelt | 1 | 2 | 3 | 4 | 5 |
| Ik weet vaak niet waarom ik boos ben | 1 | 2 | 3 | 4 | 5 |
| Ik praat met anderen liever over hun dagelijkse bezigheden dan over hun gevoelens | 1 | 2 | 3 | 4 | 5 |
| Ik kijk liever naar amusementsprogramma's dan naar psychologische drama's | 1 | 2 | 3 | 4 | 5 |
| Ik vind het moeilijk mijn diepste gevoelens prijs te geven, zelfs aan goede vrienden | 1 | 2 | 3 | 4 | 5 |
| Ik kan me dichtbij iemand voelen, zelfs tijdens ogenblikken van stilte | 1 | 2 | 3 | 4 | 5 |
| Ik vind het onderzoeken van mijn gevoelens nuttig voor het oplossen van persoonlijke problemen | 1 | 2 | 3 | 4 | 5 |
| Zoeken naar de bedoeling achter films en toneelstukken leidt je af van het genieten ervan | 1 | 2 | 3 | 4 | 5 |