



LUNDS
UNIVERSITET

INSTITUTIONEN FÖR PSYKOLOGI

Attitudes towards Dreams – and the Relation of these with Relationship Intimacy and Sleep Quality

Michael Rohde Olsen (750904T112)

Kandidatuppsats vt 2012

Handledare: Ingegerd Carlsson

Table of Contents

Abstract	2
Introduction	3
Attitudes Towards Dreams	4
<i>Beliefs and attitudes on the function and content of dreams</i>	4
<i>Approving/disapproving attitudes towards dreams and dream recall frequency</i>	7
Sleep Quality, Length of Sleep, and Dream Recall Frequency	9
Dream Sharing and Effect of Dreams on Waking Life	10
<i>Beliefs and attitudes on the function and content of dreams</i>	4
<i>Effect of dreams on waking life mood, thinking and behavior</i>	12
Summary of Existing Research	15
Aims and Hypotheses	15
Method	17
Participants	17
Procedure	17
Measures	18
Results	21
Participants	21
Beliefs and Attitudes Towards Dreams	22
Dream Recall Frequency	24
Dream Sharing	25
Dream Relation	25
Dream Effect on Waking Life	26
Correlation between Dream Sharing with Partner and Relationship Intimacy	28
Sleep and Sleep Quality	28
Discussion	29
Beliefs about the Function of Dreams	29
Dream Attitude, Dream Recall Frequency and Dream Sharing	30
Dream Relation	31
Dream Effect on Waking Life	32
Dream Sharing with Partner and Relationship Intimacy	34
Sleep and Sleep Quality	35
Study Limitations	36
Topics for Future Research	36
References	37
Appendix A	42

Abstract

The present study looked at beliefs/attitudes towards and effects of dreams, in a larger, primarily non-student, adult sample ($N=667$). On one side, findings supported previous research in that women were more approving towards dreams, they recalled more dreams, read dream literature more often, speculated more frequently about their dreams, and finally shared dreams more often than men. It was also found, that dreams primarily were shared with a partner, and mostly with the purpose of entertainment. In addition, participants generally saw dreams as having a meaningful function, and were especially supportive of the continuity hypothesis, i.e. that waking life events and thoughts are reflected in dream content, and least supportive of “pre-scientific” dream beliefs, e.g. that dreams contain messages from God. When used, dreams primarily served the purpose of gaining personal insight. 8.9% of participants had made “important” actions in their life based on input from dreams. A significant, positive correlation was found between dream sharing frequency in couples and relationship intimacy ($r=.24$, $p<.001$). Finally no correlation was found between sleep quality and dream recall, but a positive correlation was found between sleep quality and dream attitude ($r=.126$, $p<.05$).

Keywords: Dream attitude, dream recall, dream sharing, dream effect, relationship intimacy, sleep quality

Attitudes towards Dreams

– and the Relation of these with Relationship Intimacy and Sleep Quality

We all do it. It is just as natural as sleeping. In fact it is a part of sleeping! *Dreaming* – this peculiar phenomenon present during sleep, defined by Concise Oxford Dictionary as “a series of thoughts, images, and sensations occurring in a person’s mind during sleep” (Oxford Dictionaries, 2011). On average humans dream about 2 hours per night, totaling about 6 years of an average human life (see e.g. Hem, 2002 for an account of how much and when we dream). The strange thing however is that even though we all do it, and even though our mind is actively engaged in sometimes very emotionally demanding encounters (see e.g. Hull & Van de Castle, 1966 for an account of what we dream about), we rarely talk about our dreams with each other. When we do we are mostly just puzzled by the awkward images and strange scenery of the dreams, and once shared, we forget the dream altogether and do not think of it again. Well, is this really so? At least this would reflect the view of Erich Fromm (1951), who labeled dreams as the “forgotten language of modern times”, and furthermore said that “we disregard dreams as nonsense, as we do not understand them” (Fromm, 1951, p. 9). For a longer period I have been engaged in acquiring knowledge about dreams and dreaming, and have come across many interesting findings. I am curious to see whether Fromm’s thinking in 1951 is still valid today. The attitude towards dreams, but also, closely linked to that – the relationship we have with our dreams, is what this thesis is about.

As will become evident, the research topic of this thesis is an area of considerable width, covering many aspects of “attitude towards” and “relationship with” dreams. Certain aspects have already been covered fairly much by existing research – e.g. the fact that women tend to recall more dreams than men, and that they generally tend to carry a more positive attitude towards dreams than men (e.g. Schredl & Reinhard, 2008). Other aspects have been covered to a lesser extent – like how often people take conscious/waking life decisions based on a dream they have had. It is the intent of this thesis to address questions that have not yet been asked within the area of “attitudes towards and relationship with dreams”, as well as questions that have been asked, but to a lesser extent have been asked in a more general population.

Attitudes towards Dreams

Beliefs and attitudes on the function and content of dreams

Attitudes on the *function* and the *meaning* of (content of) dreams are closely linked. If you think that dreams are “garbage products of the mind”, then you would most likely think that the content of your dreams carry no significant meaning. Scientists seem to be largely in disagreement about the function of dreams, and thus also whether dream content carries any meaning. At the same time the understanding, and opinion, of why we dream exhibits continuous development. Especially – with the arrival of computers and advances in brain scan technology – knowledge in the field has increased substantially (Hem, 2002). In the following, pre-scientific and scientific views on the function of dreams are presented. As of today there are still greatly opposing views among scientists on the function of our dreams (see e.g. Hem, 2002 or Barrett & McNamara, 2007 for a relatively recent overview).

Pre-scientific views on the function of dreams

In *ancient history* (Mesopotamia, Egypt, Greece, ~3000 BC), it was strongly believed that Gods were talking to humans in dreams, and that dreams therefore were paramount for decision making, and had prophetic properties (Van de Castle, 1994). In *classical history* (~400 BC), Asians believed that dreaming is what happens when the soul is leaving the body to journey elsewhere. *Hippocrates* had a simple theory of dreams; during the day the soul receives images, during the night it produces images. *Aristotle* believed that dreams could predict and warn about diseases, just as has been supported by modern time researchers (Van de Castle, 1994). In *postclassical/medieval times* (~200 AC -1700 AC), American and Mexican tribes believed dreams to be a way of having contact with ancestors. For a longer part of this period however, dreams were seen as messages from the devil, filling the mind with corrupting and harmful thoughts. For Muslims, dreams were in this period seen as a vehicle for receiving revelations from God after the death of the last Prophet Muhammed (Van de Castle, 1994).

Scientific views on the function of dreams

Sigmund Freud (late 19th century) developed a theory of dreams, seeing them as being the “royal road to the unconscious”. To him dreams were reflecting conflicts between unconscious (primarily sexual) desires, and the conscious “overseeing/controlling” mind. Thus, to Freud, dreams

were mostly expressions of unconscious wishes (Freud, 1899). *Carl Gustav Jung* (early 20th century) began as a student of Freud, but soon departed with him, as he developed a different and broader approach to dreams, among other things strongly reducing the importance of sex. According to him, dreams should be seen as revelations from ourselves, as to how we can solve personal problems, and gain personal insights, in order to develop as individuals (Jung, 1962).

During the 1940s, dreams fell out of scientific focus, primarily because they were not a directly observable phenomenon (Hem, 2002). When *REM-sleep* was discovered in 1953, dreams came back as topic for scientific research, and “REM-sleep and dreaming in humans” was researched extensively (Hem, 2002). *Brain-scan technology* further ignited dream research. In 1976 *Allan Hobson* thus developed his *activation synthesis theory*, and received widespread acknowledgement for it. It asserts that dreams are fabricated by the cortex as means of interpreting chaotic signals from the pons, i.e. dreams have no meaning as such, they are merely the result of random chemical messaging in the brain coming from the brain stem (Hobson, 2002). *Mark Solms* however disproved this theory in 2000, as patients with damaged brain stems still have dreams (Solms, 2000).

It is also believed that dreams serve the purpose of *cleaning up among all perceptual inputs* (e.g. Crick & Mitchison, 1983), at the same time as *consolidating memory* (e.g. Hennevin & Leconte, 1971, Diekelmann & Born, 2010). In extension to this, Cartwright proposed, that dreams serve the purpose of *solving our problems*, emotional as well as non-emotional (Cartwright, 1974, later supported by Wagner, Geis, Haider, Verleger & Born, 2004). In addition, it is hypothesized, that dreams mostly are a “continuation” of waking life thoughts and events. Calvin Hall and Robert L. Van de Castle (e.g. Hall & Van de Castle 1966), were pioneers in this field creating a coding system for mapping the content of our dreams, and others (e.g. Domhoff, 2007) added to the field since then. Much of this research supports the so called *continuity hypothesis*, stating that what we do or think about while awake is reflected in the content of our dreams – in other words, there is *continuity* between waking life and dreams. Schredl and Hofmann (2003) found that this is not a 1:1-relationship however. There are other scientific views on the function of dreams, but the ones presented above are considered “leading theories of dream function” (Barrett & McNamara, 2007).

Now one thing is the view that scientists hold. But what about the “average” person – what does he or she think about the function and meaning of dreams? This has – perhaps understandably – not yet been researched to the same extent. Most research findings in terms of *attitude* towards

dreams are about whether people have a positive or negative stance against dreams (in general), and how this attitude varies depending on characteristics of the individuals researched. In this context *dream recall frequency* – i.e. the extent to which we can recall our dreams – is a parameter studied quite extensively – as this also says something about how the individual relates to his/her dreams. Especially research has looked at correlations between individual characteristics (e.g. sex, age, personality type, and social status), and dream recall frequency.

General beliefs about the function of dreams

In a study conducted among 47 Polish students, participants were interviewed regarding their view on the “role of dreams in human life” (Szmigielska & Holda, 2007). A part of this interview concerned participants ideas about the sources of dreams. The *source* of dreams most mentioned by the students, were the events that occurred on the previous day or once-in-their-life, the subconscious, and things that the subjects think about during the day. Likewise the students also mentioned the idea that the brain can’t stop functioning, so at night when there are no stimuli it creates its own reality, and that the information accumulated in the brain combines in some way, usually accidentally. In addition the participants considered other sources of dreams being emotions or mood, wishes, imagination, daydreams and fears. Interestingly students also specified the function of dreams being “the pleasure that derives from the existence of the phenomenon itself” (Szmigielska & Holda, 2007, p. 157). Some of the students also claimed that dreams induce them to think and to enable them to work over problems, and that dreams are prophecies or give warnings. As can be seen, attitudes on the *function* of dreams vary quite a bit. Morewedge and Norton (2009), found that 66% of participants ($N=62$ female students), supported a Freudian view of dreams; that they are “portals to the unconscious”, much more than they supported other newer cognitive theories about dreaming (e.g. dreams as “problem solvers” or “memory consolidators”). It has not been possible to find other studies that in this level of detail portrays “general” beliefs on the *function* of dreams, i.e. *why* we dream.

General beliefs about the content of dreams

Tedlock (1992, p. 22) stated that “Individuals in American society waver between two disparate cultural beliefs about dreams: dreams mean something, or, dreams mean nothing.” In a study of 50 psychology students, 72% of participants reported that “waking problems play a role in their dreams” (Schredl, Kleinfurher & Gell, 1996). King (2007) found in a sample of 172 first year psychology students, that a great majority of participants believed it to be true, that “dreams contain

important/relevant information.” Likewise he found that participants believed that their dreams contained information about their “personality”, “moods”, “spiritual beliefs”, “physical health”, “past”, “decisions I am currently making”, “my relationships”, and “future events”. When stating which of these was the most important element in dreams, “decisions I am currently making” was chosen by most, “my relationships” being second.

In an extensive study investigating the attitudes of children towards their dreams, it was found, that as children grew older they were more likely to say that dreams were not real (Meyer & Shore, 2001). By the age of six, most believed that dreams were “unreal, private and internal”. Meyer and Shore thus concluded that “the children in the sample seemed to be fairly Westernized in their dream attitudes”, also referring to Watkins (1986), who proposed that Western society has deemed dreams to be insignificant and meaningless.

Approving/disapproving attitudes towards dreams and dream recall frequency

Cernovsky (1984) introduced the Dream Attitude Scale (DAS) – a scale making it possible for individuals to rate themselves in terms of their approving, neutral or disapproving attitude towards dreams. Surveying 46 undergraduate psychology students, Cernovsky found that the more positive attitude towards dreams, the better the students were able to recall their dreams. This finding has been replicated many times since, also in general populations (however with modified versions of the Dream Attitude Scale). So far only one nationwide study (i.e. with a national representative sample), has been carried out with the main research focus being dream attitude and dream recall. Stepansky (1998), thus – in an Austrian sample – found that 68% of respondents recall at least one dream per month. He found no difference in dream recall frequency between men and women, but found a difference in dream recall frequency between high and low income respondents with “high” and “very high” income respondents having a higher dream recall frequency. Furthermore he found that dream recall decreased with advancing age (which has also been found in other studies, see e.g. Schredl, 2002, or Chelleppa, Münch, Blatter, Knoblauch, & Cajochen, 2009). In later studies however, significant differences in dream recall frequency were shown between men and women. Schredl and Reinhard (2008) in a meta-analysis of 175 independent studies on both children and adults found a “small but substantial gender difference in dream recall”, with women generally recalling more dreams than men. This was also linked to a generally more positive attitude towards dreams for women than for men (as measured on the Dream Attitude Scale). An interesting finding in the same meta-analysis, was that the effect size for gender

difference in dream recall was lowest for children below 10 years (0,097), and highest for adolescents (0.364) – despite being non-significant for children however. This led the authors to speculate on a “gender-specific dream socialization”, in other words that women should be socialized/nurtured into having a more positive attitude towards dreams.

This socialization could also be what leads to a generally higher interest among women (vs. men) in *reading literature* about dreams and dream interpretation. A few studies have looked at this. It has thus been found – in a German representative sample, that women – versus men – generally are more interested in reading literature about dreams and dream interpretation (10.7% of woman and 4.1 % of men stated that “they read something about dream interpretation”, $p < .001$), a total of 8% of the general population had read about dream interpretation “in order to learn more about their dreams” (Schredl, 2010a). The author criticizes himself however for having used a very crude measure for this (“I read about dream interpretation to learn about the meaning of my dreams”, Agree or Disagree), and suggested that future studies should use a frequency scale. In another study by Schredl (2000a), as much as 78% of the participants reported reading magazine articles about dreams, and 36% reported having read at least one book about dreams. This study however was conducted among 85 people from university campus, and the authors working environment. The German representative sample shows a markedly different (much lower) number than the survey conducted on campus, and potentially indicates a general problem of surveying psychology students on the topic of dreams (especially a campus at which there is a professor with a marked interest in dreams one might add)! Further – Schredl also found, that single persons read more about dream interpretation than individuals in a relationship (Schredl, 2010a).

In terms of correlation between *personality dimensions* and dream recall frequency, it has repeatedly been found, that *openness towards experience* (NEO-PI-R) and what is labeled *thin boundaries* (i.e. individuals which are generally sensitive, creative, vulnerable, experience mental in-between states, and involve themselves quickly in relationships (as opposed to *thick boundaries*), is correlated with higher dream recall frequency, and with a more positive attitude towards dreams (see e.g. Tonay, 1993, Beaulieu-Prévost & Zadra, 2006, or Schredl, Ciric, Gotz & Wittmann, 2003).

With respect to the correlation between *income level* and dream recall, two further studies have looked at this. Vanderwiele (1981), found for a sample of 776 Senegalese individuals that students of low status reported fewer dreams than students of high status. Schredl (2007), in a sample of 612 Chinese students, also looked at this, but found no significant association between

dream recall and social status (high, medium & low socioeconomic status). In two consecutive studies, no significant correlation between educational level and dream recall was found (Schredl, 2008, Schredl, 2009a).

As is shown above, the subject of *attitude towards dreams*, and *dream recall frequency* is relatively wide in its scope. At the same time though, it is evident, that much of this research has been made on undergraduate students – in many cases psychology students. Likewise research has focused mostly on the general (approving/disapproving) attitude on dreams, as well as dream recall frequency linked to certain personal attributes (sex, age, personality type etc.). What has not been studied too much is the view of a more general population when it comes to explaining *why* we dream, i.e. the *function* of our dreams. One might speculate that there is an assumption that “the average person” simply does not know this, and it might therefore not be interesting to know to what extent the average person agrees/disagrees with the various views of science on dream function. It is one intent of this thesis to understand what the average person thinks about this exact topic.

Sleep Quality, Length of Sleep, and Dream Recall Frequency

In a recent study of *sleep quality* in the Danish workforce it was indicated that “[psychological] arousal and poor sleep might create a self-reinforcing vicious circle that negatively affects a person’s well-being.” (Garde, Albertsen & Persson, 2012). For the present study this is an interesting aspect since, given the continuity hypothesis, a decreased personal well-being expectedly should be reflected in dream content. Similarly, a poor sleep quality should on one hand impact the amount of dreaming, but potentially also the frequency of dream recall. Returning to the already presented finding of higher dream recall in women, Schredl (2010b) also found, that women – more than men – tend to have nocturnal awakenings – meaning they more often wake up while dreaming, and, he speculates, are thus better able to recall their dreams. At least he found a significant correlation between nocturnal awakenings and dream recall frequency. This could be one potential reason for the higher dream recall in women, but not the only one (Schredl, 2010b). Similarly, it has been found, that insomniacs tend to recall more dreams, supposedly as they also have more nocturnal awakenings (Schredl, Schenck, Görtelmeyer & Heuser, 1998). What is however the exact relationship (or correlation) between *overall* sleep quality (as measured on Karolinska Sleep Questionnaire) and dream recall? This is a topic that has only been researched to a limited extent.

It has also been shown, that the more hours you sleep at night/per day, the more time you spend in the “REM-state” – with Delta brainwave activity – having a higher propensity to dream. In fact, the closer you get to the point of waking up after a long nights sleep, the longer your periods of REM-state sleep tend to get (Hem, 2002). Dreams however are not a phenomenon that *only* occurs during REM-state sleep, but mostly so (Hem, 2002). Expectedly you would then have more dreams the more hours you sleep, not meaning that you recall more dreams however. This thesis also examines this relationship.

Finally, an interesting topic also covered in the thesis, is the link between *overall* sleep quality and attitude towards dreams (as measured on the Dream Attitude Scale). I.e., do people that have a better sleep quality (or even in their own perception “sleep sufficiently” or “too much”) have a more positive attitude towards dreams as they – in theory – should be dreaming more? It has been found, that “neither too little nor too much sleep is optimal” (Hamilton, Nelson, Stevens, & Kitzman, 2007). Similarly it has been found, that creative people recall their dreams more often (Smith & Carlsson, 2008). One might speculate then, that certain individuals, e.g. “creatives” maybe even *prioritize* sleep, *in order to* dream – and therefore a potential positive correlation between sleep quality and dream attitude should be found.

Dream Sharing and Effect of Dreams on Waking Life

Dream sharing

The event of telling someone else about a dream you have had clearly is an example of how dreams impact waking life. What is not too clear however is *how* this impacts our waking life, i.e. our own life, and the lives of others. It has been shown how sharing dreams is an integrated part of everyday life in primitive cultures, and how dreams play an important role in shaping interaction and subsequent behavior in these cultures (Tedlock, 1992). As already pointed out, there is somewhat agreement, that dreams are not as integrated a part of Western culture, but at the same time dream sharing receives increased research focus (Vann & Alperstein, 2000, Schredl, 2009). The claim has been made, that dreams “are shared as a strategy that simultaneously tests and forges solidarity, also in the Western world” (Wagner-Pacifi & Benshady, 1993, p. 133).

In terms of research on the phenomenon of dream sharing itself, there is some continuation of what has already been reviewed with respect to dream attitude and dream recall frequency. Women thus tend to share their dreams more often than men (Curci & Rimé, 2008, Schredl, 2009,

Schredl & Schawinski, 2010). In Schredl and Schawinski's study from 2010, participants shared about 14.5% of their recalled dreams – women shared 15.2% of their dreams, men 9.7% of their dreams. In addition, participants being extraverted and having “thin boundaries” likewise shared their dreams more often than people being introverted and/or having thick boundaries. Again however, the majority of these data rests on research made on students, a great proportion of them being psychology students.

Another dimension of the topic of dream sharing is the *motivation* behind sharing our dreams with others. Why do we share our dreams? A few studies have looked at this. The *emotional intensity* of the dream acts as a predictor of whether we chose to share a dream or not. This was the conclusion reached in a survey of 627 Belgian and Italian psychology students (Curci & Rimé, 2008). In this connection, the event of *nightmares* obviously is an interesting aspect, as nightmares usually are connected with intense emotional arousal. Nightmares thus also have a bigger propensity to be shared, presumably because of the distressing effect obtained by telling it (Schredl & Schawinski, 2010). A study on undergraduates from a liberal arts college, found that study participants shared dreams primarily with the purpose of “entertainment”, secondly simply for the purpose of “sharing”, and finally for “therapeutic reasons” (Vann & Alperstein, 2000). In the same study it was shown that *listeners'* reactions to the dreams told fell into the following categories; “entertained”, “weird” and “interested”. Likewise it was also clear, that participants chose *not* to share certain dreams because of their compromising content (putting the sharer/listener in an uncomfortable situation).

Then – with *whom* do we share our dreams? Curci and Rimé (2008) found that study participants preferred sharing their dreams with (listed in order of frequency); best friends, boy/girlfriend, parents and brothers/sisters. Vann and Alperstein (2000) similarly found that dreams were shared with friends, a roommate, the significant other, family members, or others. Clearly it can be expected that findings would be different in a non-student sample, where the proportion of singles expectedly should be lower.

It is hard to separate the topics of dream sharing and effect of dreams on waking life, as these are strongly interconnected. As a continuation of dream sharing, several researchers have covered the topic of dream sharing and its potential effects on *relational intimacy*. Three studies on this topic will be presented here.

One study conducted on students found that disclosing dreams with an intimate other significantly increased the perceived intimacy of the relation with that other (Ijams & Miller, 1996). This was considered to be so, not the least because sharing a dream is considered “disclosing an intimate piece of yourself” (Ijams & Miller, 1996, p. 83). In a later study, also conducted on students, Ijams and Miller (2009) found three reasons for sharing dreams with an intimate other: 1) Pre-existing feelings of closeness, trust and understanding with an intimate other seemed to encourage, and may be foundational, to dream-disclosure. 2) Using dream-disclosure, perhaps strategically, to enhance closeness with another, and finally 3) Feelings of relational closeness and anticipated support from the other, regardless of the dreams content.

Similarly they found four reasons for *refraining* from disclosing a dream, i.e. the dream would have a lesser likelihood of being shared if the dream content included; “sexual infidelity” (e.g. with a former partner), “sexual alternatives” (foreplay/sexual intercourse with strangers, three or more dream characters, relatives or animals), “homosexual dreams” (kissing, foreplay or sexual intercourse with a person of same sex). Finally “gossip dreams” containing realistic dialogues perceived to cause oneself, the other, or the relationship harm.

A third study on dream sharing linked to relational intimacy looked at the effects of dream sharing on marital intimacy and satisfaction (Duffey, Wooden, Lumadue & Comstock, 2004). Here 108 American couples were recruited for the study, and were randomly placed in one of two groups – a dream sharing group, or an event sharing (control) group. In the dream sharing group, couples were to share their dreams with each other, in the event sharing group they were to share events (experiences) they had had during the past week with each other. Both groups went through a program for facilitating self-disclosure and intimacy building in the relationship, and both groups were trained in classical Jungian dream understanding (see e.g. Mattoon, 1984 for an account of this) – but again, only couples in the dream sharing group were instructed to share their dreams with each other. All couples followed a behavioral plan, and were to have a weekly designated time and place for sharing dreams or events. Measured on an intimacy scale, intimacy scores of the dream-sharing group were after the experiment statistically greater than intimacy scores of the event-sharing group (compared to pre-experiment scores), same thing with marital satisfaction scores. The authors also reported – based on “informal support by participants,” that dream sharing facilitates safety within a relationship, and that by sharing dreams with your partner “the instances of blaming, defensiveness, scapegoating, and power struggles are minimized” (Duffey et.al., 2004, p. 63).

Effect of dreams on waking life mood, thinking and behavior

The extent to which waking life experiences impact dream content has been researched quite extensively – among other things through research supporting the “continuity hypothesis” mentioned earlier. What has not been investigated to as great an extent is the opposite relation – how do dreams affect waking life? Several researchers point to this gap in dream research (e.g. Schredl, 2010, McNamara, 2011).

There is substantial evidence, that dreams influence daytime mood (e.g. Schredl, 2002b), and that especially *nightmares* can cause longer lasting effects on daytime mood (Köthe & Pietrowsky, 2001). Another area – that traditionally has also been presented in the public media – is the ability of dreams to creatively inspire the dreamer, or solve emotional/non-emotional problems of the dreamer. Publicly known examples are for instance “Wild Strawberries” (a film by Ingmar Bergman), the story of Dr. Jekyll and Mr. Hyde (by Robert Louis Stevenson), the Beatles song “Yesterday” (written by Paul McCartney) and the paintings by Salvador Dalí (Van de Castle, 1994).

In two student samples (Kuiken & Sikora, 1993, Schredl, 2000b), it was found that, respectively 20% and 28% of participants reported having had creative inspirations from dreams at least twice a year. In a more recent and larger study conducted primarily on psychology students ($N=1000$), it was found that about 7,8% of the recalled dreams included a creative aspect, i.e. stimulating art, dreams giving an impulse to something new (approaching a person, travelling etc.), dreams that help solving a typically work related problem (e.g. while writing a thesis or speech, working on mathematical problems and so on), and finally dreams containing emotional insights (used in psychotherapy and for personal development) (Schredl, 2007).

With respect to *use of dreams in psychotherapy*, Sigmund Freud (e.g. Freud, 1899) and Carl Gustav Jung (e.g. Jung, 1962) were pioneers in developing theoretical frameworks on how to work with dreams in psychoanalysis/analytical psychology. As mentioned earlier, much of their thinking was based on the idea of an unconscious element of our psyche, and dreams as expressions coming from this part of our psyche. Both were convinced that our dreams can provide us with vast amounts of insight about ourselves in terms of unconscious inner conflicts, desires and more. Thus – according to Freud and Jung – for people having psychological problems (e.g. anxiety, neuroticism, depression etc.), working with their dreams will be beneficial. Even today, using client dreams as an element of therapy is a widespread phenomenon. In a study of US clinicians, it was found that 83% of the surveyed clinicians ($N=228$) worked with dreams in therapy at least

occasionally (Keller, Brown, Meier, Steinfurth, Hall & Pietrowsky, 1995). In a similar study on German clinicians ($N=79$), Schredl (2000) found that working on dreams occurred in about 28% of therapy sessions, and 49% of the clients had worked at least once with a dream. Interestingly, in 66% of cases where discussing client dreams was part of the therapy, this was initiated by the client, not the therapist. At the same time they found that clients who discussed dreams in therapy (68% of sample) had increased positive attitudes toward dreams and higher dream recall – also as a result of being encouraged by their therapist to record and make use of their dreams. In another study, clients identified “gaining awareness” as the most helpful component of dream sessions. In general, they found that “clients reacted positively to dream work and felt they benefited greatly from dream-focused therapy sessions” (Hill and Goates, 2004, p. 266).

A number of authors have supported the use of one's dreams to increase self-awareness (e.g. Pietrowski & Biele, 1986, and Delaney, 1991). Research on *the use of dreams for creating personal insight or awareness* in the general population (i.e. including those not receiving therapy) is rather limited however. As already mentioned, Schredl found in a larger study ($N=1000$), that about 7,8% of recalled dreams had a “creative aspect”, and some of those dreams – no specific percentage mentioned – fell into the category “emotional insight” – without being more specific on what that means. Hill (2004), however also argued how her framework for use of dreams in therapy could just as well be used by people not receiving therapy.

An interesting element that seems to be missing in the field of “effect of dreams on waking life” is the extent to which the general population use their dreams to motivate and make conscious decisions. In a review of how dreams have influenced political decision making (Bowater, 2012), it is illustrated how among others American President Barack Obama have used his own dreams as input for decision making. Additional research in this field seems to be coming from the field of anthropology. Stephen M. Lyon (2010), examined two case-studies from Pakistan, where dreams were used to justify and motivate conscious decisions. He writes:

“Although I am not an expert on contemporary Britain, it seems to me as a resident that attempting to justify a decision on the basis of a dream would invite scorn in many circles; that is to say, dreams as justification, which I have already suggested must be treated as rational, in Britain lack the shared cognitive environment in which such evidence may be accepted as reliable. There is therefore an absence of collective public treatment of the dream as a place where “real” information can be obtained. While I lack the necessary empirical data to confirm this, my assumption is that

dreams may nevertheless serve a motivational function in contemporary Britain. In other words, people may take decisions based in part on emotional responses shaped and influenced by dream experiences. To admit to such motivation would be tantamount to declaring oneself an irrational decision maker, however, so I suggest that there is a fundamental difference in the ways in which people must address the role of dreams in decision making, at least publicly.” (Lyon, 2010, p. 274).

It seems from this, that individuals of the Western hemisphere are not too keen on admitting to the use of dreams for conscious decision making, but at the same time, it has not really been examined to what extent this is in fact happening in a broader population. It has thus not been possible to find systematic research on this topic.

Summary of existing Research

As is evident from the above, the area of dream research is wide in its scope, and many aspects of dreams and dreaming have been researched up till now. Within the scope of this thesis, the areas that have been covered the most are “general dream attitude” (as measured on the Dream Attitude Scale), “dream recall frequency” (including personal attributes linked to dream recall frequency), and “dream sharing”. Furthermore it has been shown, that dreams influence daytime mood, and that dream sharing in intimate relationships is linked to an increase in intimacy in that relationship, *if* couples have been instructed in basic Jungian dream understanding. Clients in psychotherapy furthermore benefit from discussing their dreams during therapy. Importantly, a greater amount of the mentioned findings have been reached by surveying primarily undergraduate psychology students, secondly other students. What is less researched are the beliefs on the *function* of dreams in the non-academic, broader population, and how the broader population “relates” to their dreams; do they speculate about them? Do they “use” them for anything? In other words, to what extent are dreams impacting waking life in terms of for instance decision making, personal insight and emotional problem-solving? Furthermore; an area that has not yet been researched is the link between sleep patterns/sleep quality, and dream recall/dream attitude in the general population.

Aims and Hypotheses

Research question 1 explores to what extent people agree/disagree with leading scientific and pre-scientific beliefs about the function of dreams, and whether there are any differences between men/women, and people of lower/higher education in this regard.

Research question 2 addresses general (approving/disapproving) attitudes towards dreams.

Hypothesis 2a: Women will be more positive than men.

Hypothesis 2b: There will be no significant difference between respondents of higher education vs. lower education.

Research question 3 addresses dream recall frequency.

Hypothesis 3a: Women will recall more dreams than men.

Hypothesis 3b: There will be no significant difference between respondents of higher/lower education.

Research question 4 addresses the relation between dream attitude and dream recall frequency.

Hypothesis 4: There will be significant correlation between dream attitude and dream recall frequency.

Research question 5 investigates frequency of sharing dreams, why dreams are shared and with whom they are shared.

Hypothesis 5a: Women share their dreams more frequently than men.

Hypothesis 5b: Dreams are shared primarily with the purpose of entertainment.

Hypothesis 5c: Dreams are shared primarily with a partner, secondly with friends.

Research question 6 investigates frequency of reading literature about dreams.

Hypothesis 6a: Women read dream literature more often than men.

Hypothesis 6b: Singles read dream literature more often than non-singles.

Research question 7 investigates frequency of speculating about the content of dreams.

Hypothesis 7: Women, more often than men, speculate about the content of their dreams.

Research question 8 investigates the frequency with which dreams affect waking life mood.

Hypothesis 8a: Women are more frequently affected than men.

Hypothesis 8b: There will be no significant difference between respondents of higher vs. lower education.

Research question 9; being an exploratory question, question 9 aims to describe to what extent dreams have been of good help or use, as well the extent to which dreams have been used for increased personal insight, creative input, emotional problem-solving, and non-emotional problem-solving.

Research question 10 aims to explore how often dreams have impacted waking life behavior and opinion, and whether there are any differences between men and women in this regard.

Research question 11 explores how many have made “important” waking life decisions based on input from dreams, and whether there are any differences between men and women in this regard.

Research question 12 investigates if dream sharing with a partner correlates with level of intimacy in the relationship.

Hypothesis 12: Frequency of dream sharing with a partner will be positively related with level of intimacy.

Research question 13 explores if sleep quality correlates with dream recall frequency, and with attitude towards dreams.

Method

Participants

Participants were recruited online via LinkedIn (www.linkedin.com, a “professional” community) and Facebook (www.facebook.com, a “social” community), most of them being direct “connections” or “friends” of the author, i.e. a convenience sample. In addition, psychology students at Lund University were also encouraged to participate. “Snowball”/referral sampling was furthermore applied.

Procedure

Research questions were answered via an online survey – constructed in Danish and English – at SurveyMonkey (www.surveymonkey.com). In the individualized e-mail invitation to participants, the survey was referred to as being a survey on “dreams, sleep quality and relationships”, and was explained as being part of research conducted at Lund University. Invitees were further encouraged to invite others to answer the questionnaire.

Participants had two weeks to complete the survey, and 3 days before final deadline individual reminder e-mails was sent to those Linked-in “connections” who had not notified the author that they had completed the survey (quite a big number of “connections” spontaneously did this). For Facebook “friends” a reminder was “posted” on Facebook, likewise 3 days before deadline.

After data collection had ended, data entries were exported to an excel-file, and the English and Danish data were merged into one data-file. Data were subsequently analyzed in SPSS.

Measures

Beliefs and attitudes towards dreams

With regard to *beliefs* about *the function of dreams*, a list was made matching leading views of science, as well as pre-scientific beliefs. The list contained eleven items in total. Example statements: “Dreams are garbage products of the mind”, or “Dreams portray the unfulfilled wishes that we have.” Participants were to agree/disagree on a 5-item Likert agreement scale (ranging from “Strongly disagree” to “Strongly agree”).

In terms of *approving/disapproving attitude towards dreams in general*, the *Dream Attitude Scale* (DAS, originally Cernovsky, 1984), was used in a revised 5-item version. Example item: “I view dreams as interesting and meaningful” (scored on a 5-item Likert agreement scale), resulting in a final dream attitude score between 5 and 25 (and an average total score between 1 and 5). The reliability and validity of the Dream Attitude Scale has been shown a number of times, despite the scale often being revised (e.g. Schredl, 2010b).

Dream recall frequency

Dream recall frequency was covered via two measures. First, a question on how often participants remember having had a dream after waking up in the morning (scored on a 7-item Likert frequency scale from “Never” to “Almost every day”). Next, *how many dreams* participants were able to recall as they woke up, in total for the past week.

Dream relation

The questionnaire included a measure on how frequently participants *think about the contents of their dreams*, scored on a 7-item Likert frequency scale. Also, participants were to indicate how frequently (7-item Likert frequency scale) they *read about dreams and the interpretation of dreams*.

Dream sharing

The element of *dream sharing* was covered by four measures. First of all a measure of *dream sharing frequency* was made (7-item Likert frequency); “How often do you share your dreams with others?” Secondly, a measure on *who dreams are shared with* was made; “When you share your dreams - with whom do you usually share them? Please select all that apply.” Participants were to select between “Friends”, “Partner”, “Relatives”, “Colleagues”, “My kids”, “My therapist/psychologist”, “Others” or “I don’t share my dreams”. Thirdly, participants in a relationship were to indicate how frequently they share their dreams with their partner (7-item Likert frequency). Finally, participants were to indicate the purpose of sharing their dreams; “What is usually the purpose of sharing your dreams do you think? (please select all that apply)” – choosing between “I want to understand what the dream means”, “I think the dreams are so awkward/funny that I share the dreams for the purpose of entertainment”, “To let the other person(s) know what is happening in my mind”, or “Other”.

Dream effect on waking life

With regards to *dream effect on waking mood*, participants were asked: “Have you experienced that a dream you have had influenced your mood after you woke up?” (7-item Likert frequency scale).

A crude measure was made on whether participants had ever had a *dream being of good help or use* to them (“Yes”, “No”, “Don’t know”). If participants answered yes to this question, they were to indicate in what way the dream(s) helped them, choosing between “Personal insight”, “Creative input”, “Non-emotional problem solving”, “Emotional problem solving”, “Not too sure”, and “Other” (multiple selection).

Further, participants were asked; “How often has a dream you have had influenced your opinion about something or somebody?” (7-item Likert frequency scale), and “Has a dream you

have had made you consciously change an aspect of your behaviour?” (7-item Likert frequency scale). Finally participants were asked: “Has a dream you have had ever made you decide to leave your job, move, switch career, buy a house, leave your partner - or other important actions?” (with answer options “Yes”, “No”, or “Don’t know”).

Relationship intimacy

In order to measure *relationship intimacy*, participants who indicated they were in a relationship, were to complete a shortened 10-item version of the *Intimacy Scale (IS, Walker & Thompson, 1983)*. Originally this scale contains 17 items (statements), but due to the magnitude of the overall survey, 7 items were randomly removed. The Intimacy Scale is used to assess the intimacy level of a relationship, as seen/perceived by the respondent (on a 7-item Likert frequency scale), resulting in a final intimacy score between 7 and 70 (and an average total score between 1 and 7). The scale was chosen because of its simplicity compared to more complex scales. Example items: “I’m sure of this relationship”, and “She/he shows that she/he loves me.” Scale reliabilities (Cronbach's alpha) have in previous studies ranged from .91 to .97 across assessments of different types of relationships, and construct validity of the scale has also been shown (Walker, Shin & Bird, 1990).

Sleep and sleep quality

In order to assess sleep quality, *Karolinska Sleep Questionnaire (KSQ, Åkerstedt, 1992)* was used in a previously published Danish and English 7-item version. This scale is used to assess perceived sleep quality of the respondent (on a 5-item Likert frequency scale), resulting in a final sleep quality score between 7 and 35 (and an average total score between 1 and 5, 5 being “the worst”). Example item: “During the past 3 months, how often have you felt exhausted as you woke up?”, and “During the past 3 months, how often have you been sleeping poorly and restlessly?” The KSQ has previously been tested with good reliability and validity (Kecklund & Åkerstedt, 1992).

Further, participants were to *assess the length of their sleep* during the past three months in terms of whether they usually “Get two or more hours sleep less than they need”, “Get one hour less sleep than they need”, “Get enough sleep”, “Occasionally sleep longer than necessary” or “Often sleep longer than necessary”.

Finally participants were to indicate their average number of hours of sleep during the past month at days where they were working (i.e not weekends/holidays).

Demographic measures

Participants answered questions on sex (male/female), age category (10-25, 26-39, 40-59, or 60 and above), educational level (primary school, gymnasium/youth education, tech. edu./college/university = bachelors degree, university = masters degree, or ph.d.), and marital status (single, in a relationship not living together, in a relationship living together, married, other).

Results

Participants

A total of 667 participants answered the full questionnaire, 401 of them being women (60.1%) and 266 men (39.9%). In terms of age category, 7.2% were between 10-25 years, 54.1% between 26-39 years, 33.9% between 40-59 years, and 4.8% were 60 years and above. In terms of educational background, participants belonged to the following categories; “Primary school” (3,7%), “Gymnasium/Youth education” (17,2%), “Technical edu./College/bachelor degree” (31,6%), University/Master Degree (45,1%), and “Doctoral degree/Ph.d.” (2,2%), i.e. a great number of the participants had a master degree. When making a split and categorizing “University/Master Degree” and “Doctoral degree/Ph.d.” as “higher education” (and the rest as “lower education”), respondents were divided as follows: *Lower education*: $n=351$ (52.6% of total sample), 63.0% of these were women, 37.0% men. Age distribution in “Lower education”; 11.7% (10-25 years), 41.9% (26-39), 39.3% (40-59), and 7.1% (60 and above). *Higher education*: $n=316$ (47.4% of total sample), 57.0% of these were women, 43.0% men. Age distribution in “Higher education: 2.2% (10-25 years), 67.7% (26-39), 27.8% (40-59), and 2.2% (60 and above). 80.5% of participants ($n=537$) were in a relationship (83.8% of men, 78.3% of women), 19.5% ($n=130$) single (16.2% of men, 21.7% of women). 587 respondents (88.0% of sample) completed a Danish version of the survey, 80 (12.0% of sample) completed an English version.

Beliefs and Attitudes towards Dreams

Beliefs on the function of dreams

From an overall perspective, participants were generally supportive of statements assigning a *meaningful* function to dreams, i.e. that “Dreams clean up the input from the past day”, or that “Dreams reflect the elements and events that occupy our mind while we are awake”, see table 1 below. Participants were generally less supportive of statements assigning *no* meaningful function to dreams, e.g. “Dreams are the result of random chemical messaging in our brain”, or “Dreams are garbage products of the mind”. Highest support got “Dreams reflect the elements and events that occupy our mind while we are awake” ($M=4.13$, $SD=.743$), and “Dreams are dealing with distress/emotional conflicts that we have” ($M=4.08$, $SD=.745$) – both items reflecting the continuity hypothesis. Lowest scores were given to “Dreams contain messages from the diseased/dead” ($M=1.67$, $SD=.913$), and “Dreams contain messages from God or other non-human sources” ($M=1.75$, $SD=.994$).

(For the purpose of overview, table 1 has been moved to the next page)

Table 1: Attitudes on function of dreams (mean scores, independent samples t-test, equal variances assumed, divided in men/women, low and high education, and total)

Statement / Dream function	Men (Mean)	Women (Mean)	t-value	Lower Ed.	Higher Ed.	t-value	Total (SD)
A. Dreams "clean up" the input from the past day, for memory consolidation	3.68	3.71	-.448	3.67	3.73	-.903	3.70 (.924)
B. Dreams contain messages from God or other non-human sources	1.63	1.84	-2.605***	1.87	1.62	3.246***	1.75 (.994)
C. Dreams are garbage products of the mind	2.77	2.85	-1.010	2.82	2.81	.089	2.82 (1.045)
D. Dreams are the result of random chemical messaging in our brain	2.79	2.60	2.708***	2.67	2.68	-.068	2.67 (.925)
E. Dreams can give us information about our physical/bodily condition	3.39	3.55	-2.211**	3.51	3.46	.643	3.49 (.904)
F. Dreams have a creative/problem-solving function	3.62	3.62	.045	3.65	3.59	.764	3.62 (.874)
G. Dreams reflect the elements and events that occupy our mind while we are awake	3.99	4.21	-3.818***	4.09	4.17	-1.379	4.13 (.743)
H. Dreams are prophetic - they tell us something about what awaits us in the future	1.91	2.22	-3.745***	2.27	1.91	4.508***	2.10 (1.060)
I. Dreams are dealing with distress/emotional conflicts that we have	3.96	4.16	-3.462***	4.0	4.18	-3.089**	4.08 (.745)
J. Dreams are messages about ourselves from the unconscious	3.44	3.70	-3.319***	3.65	3.53	1.480	3.60 (1.026)
K. Dreams contain messages from the diseased/dead	1.48	1.80	-4.540***	1.80	1.53	3.972***	1.67 (.913)
L. Dreams portray the unfulfilled wishes that we have	3.03	3.11	-1.084	3.13	3.03	1.224	3.08 (.988)

***Significant at the 0.001-level, ** Significant at the 0.05-level.

On certain items, significant differences were found between men and women, and respondents of lower/higher education. For all “pre-scientific belief” items (items B, H and K), significant differences were found between men and women, with women being more supportive. This was also the case for respondents of lower/higher education, with respondents of lower education being more supportive of “pre-scientific” beliefs. On additional items (items D, E, G, I, J) significant differences were found between men and women, and in terms of item I also between respondents of lower/higher education.

Dream Attitude Scale

Overall mean score on the DAS was 3.65 ($SD=.712$, Cronbach’s $\alpha=.822$). A significant difference was found between men ($M=3.51$, $SD=0.751$) and women ($M=3.74$, $SD=0.669$), $t=-4.203$, $p<.001$, i.e. women had a higher mean than men. No significant difference was found between respondents of higher/lower education.

Dream Recall Frequency

For *frequency of recalling dreams upon waking up*, overall mean score was 4.63 ($SD=1.553$). Thus, respondents on average recall dreams somewhere between “A few times a month” and “Once a week”. A significant difference was found between men ($M=4.20$, $SD=1.522$) and women ($M=4.92$, $SD=1.506$), $t=-6.059$, $p<.001$, i.e. women had a higher mean score than men. No significant difference was found between respondents of lower/higher education.

A similar pattern was found in *total number of dreams recalled in the past week*. Mean number of dreams recalled for the whole sample was 2.96 ($SD=1.716$). Men on average recalled 2.53 dreams ($SD=1.564$), women 3.24 dreams ($SD=1.755$). This difference was highly significant ($t=-5.354$, $p<.001$). No significant difference was found between respondents of lower/higher education.

A significant correlation was found between the Dream Attitude Scale and the dream recall measures. For general dream recall $r=.302$, $p<.001$, for number of dreams recalled $r=.297$, $p<.001$.

Dream Sharing

Dream sharing frequency

Total group mean for dream sharing was 3.03 ($SD=1.249$), equal to sharing dreams “Once a month”. A highly significant difference was found between men ($M=2.67$, $SD=1.089$, equal to “A few times a year or less”) and women ($M=3.26$, $SD=1.294$, equal to “Once a month”), $t=-5.354$, $p<.001$. Furthermore, a significant difference was found between singles ($M=2.79$, $SD=1.173$) and non-singles ($M=3.08$, $SD=1.262$), $t=2.395$, $p<.05$, i.e. non-singles shared dreams more often than singles. Overall frequency for sharing dreams with the partner (non-singles) was 3.21 ($SD=1.358$), meaning that on average, non-singles shared dream(s) with their partner “Once a month”. Women shared their dreams significantly more often with their partner than men (women: $M=3.45$, $SD=1.405$, men: $M=2.87$, $SD=1.213$), $t=-4.966$, $p<.001$.

Dream sharing – with whom?

Being mostly an exploratory question, it was found that dreams are shared primarily with partners, secondly, friends. Please see Appendix A for a detailed table on this.

Dream sharing – with what purpose?

Dreams are shared mostly with the purpose of “Entertainment” (74.1%), secondly in order to “Let the other person know what is happening inside me” (32.4%), thirdly because “I want to understand what the dream means” (29.4%), and finally for “Other reasons” (9.7%).

Dream Relation

Reading about dreams and the interpretation of dreams

An overall mean score of 1.49 ($SD=.795$) was found, equal to “reading about dreams and the interpretation of dreams” somewhere between “A few times per year” and “once a month”. A significant difference was found between men ($M=1.39$, $SD=.761$), and women ($M=1.55$, $SD=.811$), $t=-2.538$, $p<.05$. Similarly, a significant difference was found between singles ($M=1.62$, $SD=.791$) and non-singles ($M=1.46$, $SD=.793$), $t=2.005$, $p<.05$. Women and singles thus read about dreams and dream interpretation more often than men and non-singles. No significant difference was found between respondents of lower/higher education.

Thinking about dream content

Overall mean score was 3.96 ($SD=1.555$), equal to thinking about dream content “A few times per month”. A significant difference was found between men ($M=3.53$, $SD=1.480$) and women ($M=4.25$, $SD=1.540$), $t=-5.978$, $p<.001$, i.e. women more frequently thought about the content of their dreams. No significant difference was found between respondents of higher/lower education.

Dream Effect on Waking Life

Dream effect on waking mood

The overall mean was 2.72 ($SD=1.235$), equal to respondents on average experiencing an effect of dreams on waking mood somewhere between “A few times a year” and “Once a month”. Women scored significantly higher than men (women; $M=2.94$, $SD=1.292$, men; $M=2.39$, $SD=1.067$), $t=-5.688$, $p<.001$. No significant differences were found between participants of higher/lower education.

Dreams of good help or use, and in what way?

48.3% of participants stated that they have had dream(s) “being of good help or use” to them (43.2% of men, 51.6% of women said this). 31.9% said “No”, and 19.8% “Don’t know”. In terms of defining in what way these dreams had been helpful; 34.6% of respondents said “Personal insight”, 33.0% said “Emotional problem solving”, 19.9% said “Creative input”, 18.1% said “Non-emotional problem-solving”, 10.9% said “Don’t know” and finally 4.6% said “Other”. Some differences were found between men and women in these descriptive data (see table 3 below). A significantly greater amount of women, compared to men, used dreams for emotional problem-solving (using χ^2 , $p<.05$). Furthermore, in the present study, and despite being non-significant, a higher proportion of men compared to women used dreams for “Non-emotional problem solving”.

Table 3: *Dream(s) of help – in what way? (Descriptive data, men/women)*

Category of help	Men	Women	χ^2 sig.	Total
Non-emotional				
problem solving	<i>n</i> =54	<i>n</i> =67		<i>n</i> =121
-% of column total	20.3	16.7	.238	18.1%
Emotional problem				
solving	<i>n</i> =73	<i>n</i> =158		<i>n</i> =231
-% of column total	27.4	39.4	.001**	33.0%
Personal insight	<i>n</i> =77	<i>n</i> =143		<i>n</i> =220
-% of column total	28.9	35.7	.071	34.6%
Creative input	<i>n</i> =55	<i>n</i> =78		<i>n</i> =133
-% of column total	20.7	19.5	.698	19.9%
Don't know	<i>n</i> =22	<i>n</i> =51		<i>n</i> =73
-% of column total	8.3	12.7	.072	10.9%
Other	<i>n</i> =11	<i>n</i> =20		<i>n</i> =31
-% of column total	4.1	5.0	.609	4.6%

Dream influence on (conscious) opinion

A mean frequency score of 1.78 ($SD=.905$) was found, meaning somewhere between “Never” and “A few times in my life” participants have experienced dreams influencing their opinion about something or somebody. There were no significant differences between men/women, respondents of lower/higher education or singles versus non-singles.

Dream influence on an aspect of behavior

The mean frequency score on this measure was 1.73 ($SD=.827$), meaning somewhere between “Never” and “A few times in my life”. Women have experienced this significantly more often than men (women: $M=1.78$, $SD=.886$, men: $M=1.65$, $SD=.723$), $t=-2.034$, $p<.05$.

“Important” action based in dream input

8.9% of participants ($n=59$, 10.0% of women, 7.2% of men), stated that they have made important actions in their life (e.g. leave a partner, or change career/job), based on input from a dream. 39.9% answered they had *not* done this, and 19.8% don't know.

Correlation between Dream sharing with Partner and Relationship Intimacy

The *Intimacy Scale* mean was 5.80 ($SD=1.013$, Cronbach's $\alpha=.939$), with no significant difference between men and women. A highly significant correlation was found between dream sharing with partner and relationship intimacy (Pearson's $r=.24$, $p<.001$).

Sleep and Sleep Quality

General sleep quality

Participants reported that they slept on average 6.96 hours per night ($SD=.884$) during the past month. 16.3% stated that they slept "2 or more hours less than needed", 38.2% that they slept "1 hour less than needed", 36.6% that they "get the sleep they need", 6.6% that they "occasionally sleep longer than necessary", and 2.2% that they "Often sleep longer than necessary".

On the Karolinska Sleep Questionnaire (KSQ), overall mean for the participants was 2.56 ($SD=.558$, Cronbach's $\alpha=.728$). During the past 3 months, women slept significantly worse than men (women: $M=2.61$, $SD=.560$, men: $M=2.50$, $SD=.50$), $t=-2.492$, $p<.05$..

Dream recall related to perceived amount of sleep

When looking at dream recall (recalled total number of dreams the past week), differences were found between those that "sleep too little", and those that "sleep sufficiently/too much" (see table 4 below).

Table 4: *Dream recall frequency, groups of perceived length of sleep*

Category	Mean (SD)
Too little sleep ($n=364$)	2.77 (1.603)
Sufficient sleep ($n=244$)	3.07 (1.780)
Too much sleep ($n=59$)	3.66 (1.917)

A one-way between-groups Anova (post-hoc, Tukey), was carried out to identify potential significant differences between these groups in terms of dream recall. A significant difference was found between the groups "Sleeps too little" and "Sleeps too much" ($p<.05$). Similarly between the groups "Sleeps sufficiently" and "Sleeps too much" ($p<.05$). No significant difference was found between the groups "Sleeps too little" and "Sleeps sufficiently".

The results on the Dream Attitude Scale, using one-way between-groups ANOVA (post-hoc, Tukey), did not differ between the three groups (“Sleeps too little”, “Sleeps sufficiently” and “Sleeps too much”).

Sleep quality related to dream recall and dream attitude

There was no correlation between sleep quality (KSQ) and dream recall frequency. In terms of correlation between sleep quality (KSQ) and Dream Attitude Scale (DAS), a small and significant correlation was found (Pearson’s $r=.126$, $p<.05$). Further, between “average hours of sleep” and “general dream recall” a small but highly significant correlation was found (Pearson’s $r=.188$, $p<.001$), same thing for “average hours of sleep” and “number of dreams recalled the past week” (Pearson’s $r=.203$, $p<.001$).

Discussion

This empirical study looked at several topics within the areas of dream attitude and relationship with dreams. First of all, earlier research on dream recall frequency, dream attitude (as measured on the dream attitude scale, DAS), dream sharing, frequency of reading dream literature, speculating about dream content and dream influence on waking life mood, was replicated in a primarily non-student, though non-representative sample. In addition, a number of areas that have been less researched were also covered in this study. These involved beliefs about the function of dreams, correlation between dream sharing frequency in couples and relationship intimacy, dream effect on waking life (i.e. dream effect on conscious behavior/opinion, and decision making), and finally sleep quality related to dream recall frequency and dream attitude.

Beliefs about the Function of Dreams

Overall, participants in the present study were more supportive of scientific views assigning a meaningful function to dreams, than they were of scientific views assigning no meaningful function to dreams. This finding is also supported by previous research (e.g. Szmiegielska & Holda, 2007, Morewedge & Norton, 2009), where a majority of respondents believed dreams to have a meaningful function. Compared to these earlier studies however, this is now also shown in a larger, “non-student”, although non-representative population. The present study is believed to add new knowledge to the field, as more scientific, but also pre-scientific views were included in the survey for participants to agree/disagree with. For the pre-scientific views, interesting findings were made. Women and participants of lower education were thus – from the outset – significantly more

supportive of statements like “Dreams are prophetic” and “Dreams contain messages from the diseased/dead.” As seen in previous research (e.g. Schredl, 2010b), women generally are more supportive of dreams, and the finding could therefore be explained by a generally more approving dream attitude in women. In addition, since there were more women in the “lower education” group, compared to “higher education” however, this could be a simple explanation for the found difference between these groups on certain items, especially since women – compared to men – were similarly more supportive of these pre-scientific dream beliefs. One can only speculate on other reasons for this difference. Potentially, participants of higher education have thus been “trained” into not agreeing to statements like these (as they are potentially more “rational” in their thinking, maybe also due to their upbringing), or simply – with the additional years of studying – they do not believe in the truthfulness of these statements.

Compared to Morewedge and Norton (2009), the present study seems to point to a less “favouritist” view on Freudian/Jungian dream theory (that “dreams portray unfulfilled wishes” or “contain messages about ourselves from the unconscious”), as Freudian/Jungian dream theory was rated lower, though almost as high as newer (cognitive) theories on dream function. The great proportion of highly educated participants in the present study might be an explanation for this (i.e. to a greater extent supporting newer theories on the function of dreams), just as the fact that only women participated in the study of Morewedge and Norton (many of them being psychology students), potentially adding bias to their result.

Dream Attitude, Dream Recall Frequency and Dream Sharing

As hypothesized women had a more approving attitude towards dreams as measured on the Dream Attitude Scale, just as they recalled more dreams. This confirms most previous research (e.g. Schredl, 2010b). Similarly, women shared their dreams more often than men. As has been pointed out in earlier research, the finding that women share dreams more frequently, might simply be due to women recalling more dreams than men, even though, when partialling out dream recall, women still share dreams more often than men (as shown by Schredl, 2009). But again, the present study confirms previous findings on male/female differences in dream attitude, dream recall frequency, and frequency of dream sharing. When looking at these elements then, the present study does not add new knowledge; only one could say that despite the fact that quite a great proportion of participants had a longer educational background (and compared to earlier studies were mostly non-students), these findings were still the same. It is not the aim of this study to explain why there are

these apparent differences between men and women, but it is no doubt an obvious question to ask given the findings. As already mentioned, Schredl and Reinhard (2008) speculate on a sex specific “dream socialization”. It could also be speculated however, that this sex specific dream socialization is a small element of a much bigger general male/female socialization process, i.e. a socialization process of the type that would also explain stereotypic thinking like “men are not too good at talking about their emotions,” or “women are much better at listening to themselves” – or – put more bluntly – explain why men and women behave differently in many aspects.

With regard to *whom* dreams are shared with, data showed, that dreams were mostly shared with a partner, secondly friends. This is contrary to previous research (Vann & Alperstein, 2000, Curci & Rimé, 2008), where dreams primarily were shared with friends. However, this was expected and hypothesized due the sample being different, and primarily “non-student”, meaning the proportion of non-singles was higher. Tapping into the link between relationship intimacy and dream sharing, it should come as no surprise that most shared their dreams primarily with their partner (if they had one that is!). As sharing dreams requires intimacy, sharing them with your partner – as opposed to friends – makes sense, supposedly however depending on the intimacy level of the relationship with a friend and/or partner. When you combine this finding with the finding that dreams are mostly shared for the purpose of entertainment (74.1% of participants indicated this, which is also in line with previous research by Vann & Alperstein, 2000), and the finding that most believed dreams to carry meaningful content, some interesting questions arise. It thus seems contradictory, that most believed dreams to carry meaningful content, at the same time as dreams primarily were shared with the purpose of entertainment, somehow potentially reflecting Erich Fromm (1962), when he said that we tend to disregard dreams, as we do not understand them. From the findings here it could then be interpreted, that we share dreams primarily with our partner in order to entertain, we then maybe laugh at them, and then forget about them. Add to this the finding of Duffey et.al. (2004), that couples increased relationship intimacy by sharing dreams, *given* that they had previously received training in Jungian dream understanding. If more participants in the present study had been trained in Jungian dream understanding – would fewer then share dreams only with the purpose of entertainment?

Dream Relation

In contrast to Schredl (2010a), the present study included a frequency scale (as opposed to a more crude yes/no measure), on the topic of “reading dream literature”. Frequencies for men and

women were overall rather low, but women read dream literature more often than men. 61.9% of the respondents stated they never read dream literature, 32.2% that they read dream literature a few times per year. This is clearly more than the 2010 study by Schredl, in which 8% of the (German representative) sample stated that they “read something about dream interpretation” (Schredl, 2010a), and more in line with the study also made by Schredl, where 78% reported reading magazines about dreams (Schredl, 2000a). In the present study, a higher proportion of women answered the survey (60.1% of participants), clearly skewing the overall result. But it seems evident, that women on average *do* read about dreams more often than men. Interestingly – as also found earlier (Schredl, 2010a) – singles read about dreams more often than non-singles. Combined with the finding in this study that non-singles shared their dreams primarily with their partner, it can be speculated, that non-singles to a lesser extent “see the need” to consult dream literature, as they have their partner to discuss and share their dreams with. At the same time it is interesting though, that a great proportion of participants have a higher education (masters degree or Ph.d., 47.3% of participants), wherefore one could expect finding even lower percentages on reading dream literature, given that dreams supposedly are “the forgotten language of modern times” as suggested by Fromm (1951), and that viewing dreams as a rational thing is problematic (Lyon, 2010). It would be interesting to further understand precisely what type of literature is read by those answering “a few times per year” or more, and the context in which it is being read. For instance, are men sometimes being encouraged by their more dream-approving female partners to read a specific magazine article – or book for that matter - on dreams? Similarly, if dreams are believed to carry such great meaning, why is the frequency of reading dream literature not higher?

Dream Effect on Waking Life

Dream effect on mood

With regards to the effect of dreams on waking mood, this is something that most participants have experienced (only 7.8% of participants stated they have never experienced this), and again women experienced this more frequently than men, which is likewise in line with previous research (e.g. Schredl, 2002b). Being something that most have experienced, this is an area where it is very obvious, that dreams impact waking life. It is however still unclear in what ways this happens, how it is discussed/approached when it happens etc.

Dreams being of help

Potentially reflecting an overall approving attitude towards dreams, 48.3% of participants stated that they have experienced a dream (or more dreams) being of “good help or use” to them. What is unclear however is to what extent participants are *consciously* aware of – and can maybe even recall – specific dreams that have helped them with respective elements in their lives, or whether they just have a general feeling that dreams have helped them. As many of our dreams are not recalled, we will probably never fully understand the role of these unrecalled dreams, how they impact our waking life etc. It is evident however, that many had the belief that dreams have helped them in some way.

As previously mentioned, Schredl (2007) looked specifically at use of dreams for *creativity*, but potentially with a relatively broad understanding of “creativity” (incl. dreams containing “emotional insights”). In the present study, the participants who answered they had been helped by their dreams, were asked to state in what way they had been helped by their dreams (in categories). Here it is clear, that most helpful dreams had been used for “emotional problem-solving” and “personal insight.” Again, it is not clear whether these dreams are then actually recalled dreams, or just dreams in general. An interesting finding however was the fact, that a significantly higher proportion of women (compared to men) indicated that they used their dreams for “emotional problem-solving”. Similarly – despite being non-significant – a higher proportion of men (vs. women) indicated that they used dreams for “non-emotional problem solving” (as opposed to emotional problem-solving). This is interesting because it could point to potential sex specific dream use patterns. When taking the continuity hypothesis into account, this makes sense. If men – compared to women – are proportionately more concerned with non-emotional problem solving during waking life as stereotypical thinking might suggest – then this should also be reflected in dream content. This aspect is however obviously *different* from the question of what men typically *use* their dreams for. One thing is actual dream content, another thing is dream use. It could thus also be speculated, that men – more than women – tend to view their problems as being of a non-emotional character, whereas women would view the exact same problems as being of an emotional character, again pointing to general differences between men and women.

The above doubt about whether participants have thought about “dreams in general” or specific, recalled dreams, is potentially circumvented in the question on use of dream(s) for motivating specific “important” actions in waking life. 8.9% of participants ($n=59$, 7.2% of all men,

10.0% of all women), stated that they have made important actions in their life, based on input from a dream they have had. That 8.9% of a relatively “well-educated” sample takes important decisions in their lives based on input from their dreams, clearly is interesting compared to the earlier presented view of Stephen Lyon, who said that “attempting to justify a decision on the basis of a dream would invite scorn in many circles” (Lyon, 2010, p. 274). It is therefore an open question whether in fact more participants have taken “important decisions” (or decisions in general for that matter), based on recalled dreams, i.e. that respondents in the present survey have not been completely honest when answering this question due to “public opinion” – or the “shared cognitive environment” as Lyon labels it, not supporting this.

In extension to this, dreams have had a moderate influence on waking life (conscious) opinion and behavior of participants, however in terms of behavior, more to women than men. Again – the question of whether this influence comes from actual/recalled or non-recalled dreams remains unanswered. General participant comments to the questionnaire indicate that findings from these questions should be taken somewhat cautiously. Some thus pointed out, that “certain questions” were missing a “Don’t know” option, instead of just frequency indications. It is thus speculated, that in many cases, participants simply do not know whether dreams have influenced their waking opinion and behavior, and these questions should have been rephrased into whether “specific, recalled dreams have consciously made them change their waking opinion/behavior.”

Dream Sharing with Partner and Relationship Intimacy

A small but significant correlation was found between frequency of dream sharing with a partner and relationship intimacy (Pearson $r=.240$, $p<.001$). That there *is* a correlation is potentially explained by Ijams and Miller (2009), who – as presented earlier – found that a pre-requisite for dream sharing are feelings of closeness and trust with an intimate other. In addition – also presented earlier – Duffey et.al. (2004), found that dream sharing in relationships increased relational intimacy, when couples had been trained in Jungian dream theory. Presumably, very few respondents in the present study have been trained in dream theory, which could explain that the correlation is not higher (after all, dreams are mostly shared with the purpose of entertainment!). When taking into account, that we also refrain – and probably *should* refrain – from telling certain dreams (Ijams & Miller, 2009), it would seem wrong to simply conclude that more dream sharing in intimate relationships leads to increased relationship intimacy. Overall, however these findings suggest that relationships (couples or close friends) can become even more intimate if individuals in

these relationships learn how to work with their dreams. And of course, any causality cannot be concluded, as this correlation presumably is bidirectional; increased dream sharing in couples could lead to increased intimacy, and increased intimacy could lead to increased dream sharing.

Sleep and Sleep Quality

As a final element of the study, correlations between length of sleep, sleep quality (as measured on Karolinska Sleep Questionnaire, KSQ), dream recall frequency, as well as dream attitude (as measured on the Dream Attitude Scale, DAS), were examined. No correlation was found between sleep quality and dream recall frequency. As hypothesized, lower sleep quality does not necessarily result in lower dream recall, as e.g. frequent nocturnal awakenings can actually result in higher dream recall frequency (Schredl, 2010b), from this reasoning rather on the contrary then. On the other hand, neither a positive nor negative correlation was found, which seems puzzling. An experimental check of looking at men and women in isolation (i.e. whether sleep quality of males/females related with dream recall frequency), still produced no correlation. We are left to speculate what causes this result, and probably need to look into variables other than sleep quality in itself in order to explain dream recall frequency. As already shown by others (e.g. Schredl, 2010b), there are many other variables correlating with dream recall frequency.

Significant differences in dream recall frequency was found between participants that “Sleeps too little” and those that “Sleeps sufficiently” and “Sleeps enough”. Interestingly, no difference was found between those that “Sleeps too little” and those that “Sleeps sufficiently”. As with other questions, judging whether you get enough sleep is highly subjective, and some might say that they get enough sleep, whereas “sleep experts” would state that this is not the case. What was evident however is that even though participants slept more than deemed necessary, they increased their dream recall frequency, meaning even though it is unhealthy to sleep “too much” (Hamilton, 2007), we do not stop dreaming (as is potentially also supported by the found positive correlation between hours of sleep and dream recall frequency). As sleep and REM-sleep researchers have found, dreams tend to get more bizarre the longer our REM-periods get (Hem, 2002), and you could then – comparing to Hamiltons finding that too much sleep is harmful (Hamilton, 2007) – question the *value* of these “late-stage” dreams.

An interesting *positive* correlation between sleep quality (KSQ) and dream attitude (DAS) was found. This practically means that the worse your sleep quality, the more positive you are

towards dreams. Linked to the finding and in certain cases speculation that more nocturnal awakenings cause better dream recall, this could also play a role in explaining this correlation. As already stated however, no correlation between sleep quality and dream recall frequency was found.

Study Limitations

Of particular interest in this study is the fact, that 60.1 of participants were women. This however is typical for most studies in this field (e.g. Schredl, 2002, Schredl, 2010 and several others). As shown many times, women are generally more supportive of dreams. The survey was in the e-mail invitation announced as being “about dreams, sleep quality and relationships”, which could bias the response, and thus impact research findings. It could even attract respondents who have a higher-than-average interest in dreams, which would again bias research findings. Furthermore, respondents consisted of a greater-than-average amount of highly educated individuals, which could similarly skew the result. Finally, at the end of the questionnaire, participants had the option to comment on the questionnaire in general, suggest improvements etc. From these comments it seemed, that the interest in dreams somehow grew as participants went through the questionnaire Comments as “VERY interesting survey, can I see the results?”, “Interesting! Can you recommend any literature on dreams?”, were not uncommon. These elements should be kept in mind when interpreting results.

Topics for Future Research

Going through results and discussing these leaves a number of potential areas for future research. First of all, the finding that women generally have a “closer relationship” with, or at least more positive attitude towards, dreams, poses the obvious question of why this is so. A few researchers have been trying to explain this (e.g. Schredl & Reinhard, 2008), but many questions are still unanswered. For instance; is sex specific dream socialization (i.e. how we are “brought up” with a certain approach/attitude towards dreams depending on our sex), part of a bigger more general male/female socialization process?

Secondly; Duffey et. al. (2004) showed that couples – once trained in Jungian dream theory – benefited from sharing their dreams with each other. Other studies (e.g. Keller et.al., 1995) found that individuals in therapy benefited from working with their dreams. What about the individual not in therapy, and the individual “in isolation” (i.e. irrespective of being in a relationship or not), could

he/she – when trained in e.g. Jungian dream theory – somehow benefit from working with his/her dreams?

Further; what type of literature is being read when reading about “dreams and dream interpretation”? There is much literature in this field, ranging from “dream dictionaries”, scientific books/articles, magazine articles etc., and presumably type of dream literature being read varies. And; are there any differences between men and women in this regard? Similarly, since dreams are considered as containing meaningful content, why aren’t more reading dream literature?

Also, the topic of dream effect on mood leaves open questions. For instance; how do parents respond to nightmares of their kids, and would they respond differently if trained in e.g. Jungian dream understanding?

When people actually make active use of their recalled dreams, are there then any differences in this approach between men and women? Does men e.g. – to a greater extent than women – use dreams for “non-emotional problem solving”? A comparison between the content of male dreams (vs. female dreams) and successive use of these dreams in men/women would be interesting. Similarly – more studies on the use of recalled dreams for conscious decision making are needed.

In addition – if too much sleep is harmful (Hamilton, 2007), what is then the function of the longer REM-state dreams we tend to have as we sleep more hours? Further; what can explain the correlation between sleep quality and dream attitude?

On a conclusional note, the area of “attitude towards and relationship with dreams” covers an almost infinite range of research topics. The present study has shed a little more light on some of these topics, but it is evident, that many questions are still outstanding.

References

- Barrett, D., & McNamara, P. (2007). *The New Science of Dreaming*. Westport, USA: Praeger.
- Beaulieu-Prévost, D., & Zadra, A. (2007). Absorption, psychological boundaries and attitude towards dreams as correlates of dream recall: two decades of research seen through a meta-analysis. *Journal of Sleep Research*, 16, 51-59.

- Cartwright, R. D. (1974). Problem Solving: Waking and dreaming. *Journal of Abnormal Psychology*, 83, 451-455.
- Cernovsky, Z. Z. (1984). Dream recall and attitude towards dreams. *Perceptual and Motor Skills*, 58, 911-914.
- Chellappa, S. L., Münch, M., Blatter, K., Knoblauch, V., & Cajochen, C. (2009). Does the Circadian Modulation of Dream Recall Modify with Age? *Sleep*, 32(9), 1201-1209.
- Crick, F., & Mitchison, G. (1983). The function of dream sleep. *Nature*, 304(5922), 111-114.
- Curci, A., & Rimé, B. (2008). Dreams, emotions, and social sharing of dreams. *Cognition and Emotion*, 22(1), 155-167.
- Delaney, G. (1991). *Breakthrough Dreaming*. New York: Bantam.
- Diekelmann, S., & Born, J. (2010). The memory function of sleep. *Nature Reviews Neuroscience*, 114-126.
- Domhoff, G. W. (2007). *The Scientific Study of Dreams*. Washington: American Psychological Association.
- Duffey, T. H., Wooten, H. R., Lumadue, C. A., & Comstock, D. C. (2004). The Effects of Dream Sharing on Marital Intimacy and Satisfaction. *Journal of Couple & Relationship Therapy*, 3(1), 53-68.
- Freud, S. (1899). *Die Traumdeutung*. Leipzig & Vienna: Franz Deuticke.
- Fromm, E. (1951). *The Forgotten Language: An Introduction to the Understanding of Dreams, Fairy Tales, and Myths*. London: Grove Pr.
- Garde, A. H., Albertsen, K., & Persson, R. (2012). Bi-Directional Associations Between Psychological Arousal, Cortisol, and Sleep. *Behavioral Sleep Medicine*, 10, 28-40.
- Hall, C. S., & Van de Castle, R. L. (1966). *The content analysis of dreams*. New York: Appleton Century Crofts.
- Hamilton, N. A., Nelson, A., Stevens, N., & Kitzman, H. (2007). Sleep and psychological well-being. *Social Indicators Research*, 82(1), 147-163.
- Hem, L. (2002). *Drømme, Psykoterapi og REM-søvn (Dreams, Psychotherapy and REM-sleep)*. Copenhagen: Frydenlund.
- Hill, C. E. (2004). Introduction to Dream Work in Therapy: Facilitating Exploration, Insight, and Action *Dream Work in Therapy: Facilitating Exploration, Insight, and Action*. Washington: American Psychological Association.

- Hill, C. E., & Goates, M. K. (2004). Research on the Hill cognitive-experiential dream model. *Dream Work in Therapy: Facilitating Exploration, Insight, and Action* (pp. 245-288). Washington: American Psychological Association.
- Hobson, J. A. (2002). *Dreaming - A Very Short Introduction*. New York: Oxford University Press.
- Ijams, K., & Miller, L. D. (1996). *The effects of dream-disclosure on self-awareness and relational intimacy*. Ph.d., Wayne State University.
- Ijams, K., & Miller, L. D. (2009). Perceptions of dream-disclosure: An exploratory study. *Communication Studies*, 51(2), 135-148.
- Jung, C. G. (1962). *Memories, Dreams, Reflections*. London: Flamingo.
- Kecklund, G., & Åkerstedt, T. (1992). The psychometric properties of the Karolinska Sleep Questionnaire. *Journal of Sleep Research*, 1 (Suppl. 1)(113).
- Keller, J. W., Brown, G., Maier, K., Steinfurth, K., Hall, S., & Pietrowsky, C. (1995). Use of dreams in therapy: A survey of clinicians in private practice. *Psychological Reports*, 76, 1288-1290.
- King, D. B. (2007). Investigating dream attitudes and their relationship to dream content and waking life. *24th Annual Conference of the International Association for the Study of Dreams*, Sonoma, CA: David B. King.
- Kuiken, D., & Sikora, S. (1993). *The impact of dreams on waking thoughts and feelings (in Moffitt/Kramer/Hoffmann: The Functions of Dreaming)*. Albany: State University of New York Press.
- Köthe, M., & Pietrowsky, R. (2001). Behavioral effects of nightmares and their correlations to personality patterns. *Dreaming*, 11, 43-52.
- Leconte, P., & Hennevin, E. (1971). Augmentation de la durée de sommeil paradoxal consécutive à un apprentissage chez le rat. *Comptes rendus de l'Académie des Sciences de Paris*, 273, 86-88.
- Lyon, R. E. C., & Hill, C. E. (2004). Client Reactions to Working With Dreams in Psychotherapy. *Dreaming*, 14, 207-219.
- Lyon, S. M. (2010). Motivation and Justification from Dreams: Muslim Decision-Making Strategies in Punjab, Pakistan. *History and Anthropology*, 3, 263-276.
- Mattoon, M. A. (1984). *Understanding Dreams*. Dallas, Texas: Spring Publications.
- McNamara, P. (2011). The impact of dreams on your social life. <http://www.psychologytoday.com/blog/dream-catcher/201105/the-impact-dreams-your-social-life>
- Meyer, S., & Shore, C. (2001). Children's understanding of dreams as mental states. *Dreaming*, 11, 179-194.

- Morewedge, C. K., & Norton, M. I. (2009). When Dreaming Is Believing: The (Motivated) Interpretation of Dreams. *Journal of Personality and Social Psychology*, 96(2), 249-264.
- Oxford Dictionaries. (Ed.) (2011) Concise Oxford English Dictionary: Main edition. Oxford: Oxford University Press.
- Pietrowsky, Z. A., & Biele, A. M. (1986). *Dreams: A key to self-knowledge*. Hillsdale: Erlbaum.
- Schredl, M. (2000a). Use of Popular Dream Literature. *Perceptual and Motor Skills*, 11, 1194.
- Schredl, M. (2000b). The effect of dreams on waking life. *Sleep Hypnosis*, 2, 120-124.
- Schredl, M. (2002). Messung der Traumerinnerung: Skala und Daten gesunder Personen. *Somnologie*, 6, 34-38.
- Schredl, M. (2008). Dream Recall Frequency in a Representative German Sample. *Perceptual and Motor Skills*, 106, 699-702.
- Schredl, M. (2009). Sharing Dreams: Sex and other sociodemographic variables. *Perceptual and Motor Skills*, 109, 235-238.
- Schredl, M. (2009a). Recall Frequency of Positive and Negative Dreams in a representative German Sample. *Perceptual and Motor Skills*, 108, 677-680.
- Schredl, M. (2010a). Reading Books About Dream Interpretation: Gender Differences. *Dreaming*, 20(4), 248-253.
- Schredl, M. (2010b). Explaining the Gender Difference in Dream Recall Frequency. *Dreaming*, 20(2), 96-106.
- Schredl, M. (2010c). Characteristics and contents of dreams. *International Review of Neurobiology*, 92, 135-153.
- Schredl, M., Bohusch, C., Kahl, J., Mader, A., & Somesan, A. (2000). The Use of Dreams in Psychotherapy: A Survey of Psychotherapists in Private Practice. *Journal of Psychotherapy Practice and Research*, 9(2), 81-87.
- Schredl, M., Ciric, P., Gotz, S., & Wittmann, L. (2003). Dream recall frequency, attitude towards dreams and openness to experience. *Dreaming*, 13, 145-155.
- Schredl, M., & Erlacher, D. (2007). Self-Reported Effects of Dreams on Waking-Life Creativity: An Empirical Study. *The Journal of Psychology*, 141(1), 35-46.
- Schredl, M., & Hofmann, F. (2003). Continuity between waking activities and dream activities. *Consciousness and Cognition*, 12, 298-308.
- Schredl, M., Kleinferchner, P., & Gell, T. (1996). Dreaming and personality: Thick vs. thin boundaries. *Dreaming*, 6, 219-223.

- Schredl, M., & Piel, E. (2008). Interest in Dream Interpretation: A Gender Difference. *Dreaming*, 18(1), 11-15.
- Schredl, M., & Reinhard, I. (2008). Gender differences in dream recall: a meta-analysis. *Journal of Sleep Research*, 17, 125-131.
- Schredl, M., & Schawinski, J. A. (2010). Frequency of dream sharing: The effects of gender and personality. *American Journal of Psychology*, 123(1), 93-101.
- Schredl, M., Schenck, W., Görtelmeyer, R., & Heuser, I. (1998). Einflussfaktoren auf die Schlafqualität bei Gesunden [Influencing factors on the sleep quality in healthy persons]. *Somnologie*, 2, 99-103.
- Smith, G. J. W., & Carlsson, I. (2008). *Process and personality. Actualization of the personal world with process-oriented methods*. Frankfurt: Ontos Verlag.
- Solms, M. (2000). Dreaming and REM sleep are controlled by different brain mechanisms. *Behavioral and Brain Sciences*, 23, 843-850.
- Stepansky, R., Holzinger, B., & Schmeiser-Rieder, A. (1998). Austrian Dream Behavior: Results of a Representative Population Survey. *Dreaming*, 8(1), 23-30.
- Szmigielska, B., & Holda, M. (2007). Students' Views on the Role of Dreams in Human Life. *Dreaming*, 17(3), 152-158.
- Tedlock, B. (1992). *Dreaming: Anthropological and Psychological Interpretations*. New Mexico: School of American Research Press.
- Tonay, V. K. (1993). Personality correlates of dream recall: Who remembers? *Dreaming*, 3, 1-8.
- Van de Castle, R. L. (1994). *Our Dreaming Mind*. New York: Ballentine.
- Vandewiele, M. (1981). Wolof adolescents' dreams. *Journal of Psychology*, 109, 3-10.
- Vann, B., & Alperstein, N. (2000). Dream Sharing as Social Interaction. *Dreaming*, 10(2), 111-119.
- Wagner-Pacifici, R. and Bershad, H. (1993). "Portents or Confessions: Authoritative Readings of a Dream Text." *Symbolic Interaction*, 16 (2), 129-143.
- Wagner, U., Gais, S., Haider, H., Verleger, R., & Born, J. (2004). Sleep inspires insight. *Nature* (427), 352-355.
- Walker, A. J., Shin, H.-Y., & Bird, D. N. (1990). Perceptions of Relationship Change and Caregiver Satisfaction. *Family Relations*, 39(2), 147-152. *Nature*, (427), 352-355.
- Watkins, M. (1986). *Invisible guests: The development of children's imaginal dialogues*. New Jersey: Analytic Press.

Appendix A

Table 2: *Dream Sharing – with whom? (Descriptive data, men/women, singles/non-singles and total)*

Usually share dreams with?	<u>Men</u>	<u>Women</u>	<u>Singles</u>	<u>Non-singles</u>	<u>Total</u>
Friends	<i>n</i> =95	<i>n</i> =213	<i>n</i> =98	<i>n</i> =210	<i>n</i> =308
-% of column total	35.7	53.1	75.4	39.1	46.2%
Partner	<i>n</i> =215	<i>n</i> =313	<i>n</i> =29	<i>n</i> =499	<i>n</i> =528
-% of column total	80.8	78.1	22.3	92.9	79.2%
Relatives (family)	<i>n</i> =60	<i>n</i> =152	<i>n</i> =67	<i>n</i> =145	<i>n</i> =212
-% of column total	22.6	37.9	51.5	27.0	31.8%
Colleagues	<i>n</i> =40	<i>n</i> =105	<i>n</i> =33	<i>n</i> =112	<i>n</i> =145
-% of column total	15.0	26.2	25.4	20.9	21.7%
Kids	<i>n</i> =34	<i>n</i> =78	<i>n</i> =17	<i>n</i> =95	<i>n</i> =112
-% of column total	12.8	19.5	13.1	17.7	16.8%
Therapist/psychologist	<i>n</i> =4	<i>n</i> =16	<i>n</i> =8	<i>n</i> =12	<i>n</i> =20
-% of column total	1.5	4.0	6.2	2.2	3%
Don't share	<i>n</i> =1	<i>n</i> =2	<i>n</i> =1	<i>n</i> =2	<i>n</i> =3
-% of column total	.4	.5	.1	.3	.4%
Others	<i>n</i> =2	<i>n</i> =5	<i>n</i> =4	<i>n</i> =3	<i>n</i> =7
-% of column total	0.8	1.2	0.6	0.4	1%