

Attitudes toward dreaming predict subjective well-being outcomes mediated through emotional positivity bias

Dylan F. Selterman

University of Maryland, College Park, USA

Summary. The current study examined how attitudes toward dreams, as well as an appraisal of typical emotions experienced in dreams, predicted greater subjective well-being. Participants completed a measure of attitude and beliefs about dreams, and appraised their positive and negative dream affect in an average dream. Additionally, participants completed measures of typical daily affect (positive and negative) along with life satisfaction, as measures of subjective well-being. Results showed that having a positive attitude toward dreams was associated with life satisfaction and positive waking affect, and that these associations were fully mediated by a high ratio of positive to negative emotional appraisal for dreams. This emotional positivity bias in dream recall was the link between positive attitudes toward dreams and psychological health. Results remained significant while controlling for other variables related to the experience of dreaming (emotional intensity and recall/frequency). Implications for subjective well-being are discussed.

Keywords: Appraisal, bias, dreams, emotion, life satisfaction, psychological health, subjective well-being

1. Introduction

A review of the scientific literature on dreams shows that there is scant research examining links between people's perceptions of their dreams and psychological health (e.g., life satisfaction, positive affect), and the few studies examining these variables have yielded mixed results. Some studies have found associations between patterns of dreaming, personality, and psychological/emotional health variables (e.g., Gilchrist, Davidson, & Shakespeare-Finch, 2007; Pesant & Zadra, 2006), while others have not (St-Onge, Lortie-Lussier, Mercier, Grenier, & De Koninck, 2005). Conversely, a review of the scientific literature on psychological well-being (e.g., Diener, Oishi, & Lucas, 2009) shows no mention of how people conceptualize their dreams as a variable of interest in predicting psychological health. This represents a gap in the research.

The science of subjective well-being has tended to focus on demographic factors (e.g., culture, religion, socioeconomic status; Myers & Diener, 1995), behavioral variables (e.g., savoring; Bryant & Veroff, 2007), and mental states (e.g., mindfulness; Brown & Ryan, 2003) as predictors of happiness or affective health. Thus far unstudied, attitudes toward dreaming, and reflections on the experience of dreaming, may also predict subjective well-being. The continuity hypothesis of dreaming proposes that experiences in dreams are similar to that of waking life, and that there is general correspondence between the content/affect of people's dreams and their behavior in daily life (Schredl &

Hofmann, 2003). Evidence suggests that the scenarios, behaviors, emotions, and cognitions in dreams mimic those experienced in people's lives (see Domhoff, 2007 for more discussion). Based on this perspective, it is reasonable to suggest that individuals who perceive their dreams as containing a greater amount of positive affect (relative to negative affect) would also show increased psychological health and subjective well-being.

Consistent with this perspective, Gilchrist et al. (2007) found significant associations between emotions experienced in dreams and in waking life, such that more positive and less negative emotions in dreams were associated with increased emotional health, as measured by self-reports. Furthermore, there were sizable associations between specific emotions experienced in dreams and recorded in daily diaries (e.g., joy, anger) and those same emotions experienced in waking life (median r 's = .47 and .58 for negative and positive emotions, respectively). Smaller and inconsistent associations also emerged between life satisfaction and positive dream emotion and negative dream emotion (effects were stronger for negative dream emotion). No significant associations emerged between general affect experienced in life (measured by the Positive and Negative Affect Scale; Watson, Clark, & Tellegen, 1988) and specific dream emotions.

Similarly, Pesant and Zadra (2006) found that the positive/negative affect ratio in dreams, which was coded using the Hall and Van de Castle (1966) system of dream content analysis, was inconsistently associated with different measures of psychological well-being. The most consistent association was for neuroticism/emotional stability; inverse or null associations were found for trait anxiety, depression, and general psychopathology. Finally, St-Onge et al. (2005) did not find evidence for an association between dream emotion and life satisfaction, in young adult or older women. The mixed results from these previous studies warrant further research in this area.

One possible explanation for the inconsistent findings described above lies in the process of reflection and "interpre-

Corresponding address:

Dylan Selterman, Ph.D., 1147 Biology/Psychology Building
University of Maryland, College Park, College Park, MD
20742

Email: Dylan.Selterman@gmail.com

Submitted for publication: April 2015

Accepted for publication: February 2016

tation” of dreams after they occur, and how those processes are related to subsequent cognitions, emotional states, and behaviors. Perceptions of dreams can also be distorted or inaccurate due to memory or emotional appraisal biases. Social psychological research has shown not only that individuals’ understanding of their own dreams is biased, but also that the biased process of dream interpretation/reflection is linked with other waking cognitions, decision-making, judgments, and interpersonal relationships, and some of these demonstrated associations are causal (Morewedge & Norton, 2009). Reflection on dreams could affect subjective well-being as well.

Researchers have conceptualized attitudes or beliefs concerning dreams as variables of interest mainly with respect to predicting dream recall frequency (Schredl, Ciric, Gotz, & Wittmann, 2003). Such attitudes include the perception that dreams are meaningful or important (“Major life events and important changes in my life affect also my dreams.”). Previous work has shown that a positive attitude toward dreaming is associated with various personality and individual difference variables, ranging from psychological openness (or absorption) to gender (Beaulieu-Prevost & Zadra, 2007; Schredl, Nurnberg, & Weiler, 1996). The degree to which people ascribe value and meaning to their dreams (in other words, hold a positive attitude toward dreaming) may be related to subjective well-being, though this has not yet been examined. That is the purpose of the current study.

Other dream researchers have suggested that dreaming serves an emotion regulation function, which has implications for psychological health (Cartwright, 1991). Even dreams that are emotionally negative may serve to regulate mental health if they address current concerns from waking life. For example, the experience of dreams that incorporated an ex-spouse along with salient emotions was associated with increased psychological health (in this case, depression non-remission) relative to non-emotional dreams with similar content (Cartwright, Agargun, Kirkby, & Friedman, 2006). Other research has shown a within-sleep mood regulatory function for dreaming (Cartwright, Young, Mercer, & Bears, 1998).

Most, but not all dreams derived in laboratory studies and in home environments with diaries contain some amount of emotion (Domhoff, 2007). In addition, most dreams are more affectively negative than positive; that is, negative emotion typically dominates in frequency and intensity over positive emotion (e.g., Merritt, Stickgold, Pace-Schott, Williams, & Hobson, 1994; Nielsen, Deslauriers, & Baylor, 1991). However, given that dream reflection/interpretation is subject to motivated cognitive biases, and that positive emotional biases can be a mark of psychological health (despite their inaccuracy), it is also possible that people who possess such a bias would appraise their average dream as having more positive affect than negative affect, and that this perception would be associated with a positive attitude toward dreaming and greater subjective well-being.

The current study

The overarching goal of the present study was to examine how attitudes toward dreaming, as well as appraisal of emotions experienced in dreams, are related to psychological health outcomes. An investigation of how reflection on dreams is related to life satisfaction and waking affect represents an advance in the research on subjective well-being,

by broadening our understanding of what variables contribute to a healthy psychological profile.

Hypothesis 1: Positive beliefs/attitudes towards dreams (as meaningful and important) will be associated with life satisfaction, positive waking affect, and inversely with negative waking affect, and that those subjective well-being variables will also be associated with the degree to which people appraise more positive and less negative emotion in their dreams.

Hypothesis 2: An emotional positivity bias (appraising dreams as having more positive dream affect than negative dream affect), will mediate the association between a positive attitude towards dreaming and subjective well-being variables.

2. Method

2.1. Participants

Two-hundred and seven undergraduate students at the University of Maryland (61 male, 146 female; Mage = 20.01 years, SD = 1.53, age range: 18-27 years) participated in the study for extra credit through the psychology department subject pool. Participants were recruited to participate in a study on emotional experience, psychological health, personality, and dreaming, although they were not required to be frequent dreamers in order to participate.

2.2. Materials and Procedure

The procedure began with the collection of informed consent, followed by an extended survey that included assessments of subjective psychological well-being, emotionality (affect) in waking life and in dreams. All materials were administered online via Survey Gizmo software. The reliability scores reported below are measures of internal consistency for the items in each survey, indicated by Cronbach’s alpha (Cronbach, 1951).

Beliefs & Attitudes Toward Dreams. Participants completed a 7-item questionnaire assessing general attitudes toward dreaming (e.g., “Dreaming is of importance for me;” “Thinking about one’s dreams will enhance knowledge about him/herself,” $\alpha = .79$) with some items taken from previous research (Schredl et al., 1996). As controls, participants also completed a 1-item measure of dream recall frequency; “How often have you recalled your dreams recently, in the past few months?” as well as an item assessing emotional intensity of dreams (“My dreams are usually emotionally intense”). All items were rated on 5-point Likert scales.

Dream Emotion Appraisal. In order to prompt consideration of content and emotions in dreams, participants recalled dreams in an open-ended, free-response format. Questions geared toward different types of dream content (e.g., “Have you ever learned something about yourself in a dream? If yes, please describe.”) allowed participants to elaborate on their own dreaming experiences, as well as the emotional content of such dreams. Participants were asked to describe dreams involving other people, problem resolution, creativity, etc. as a way to probe reflection and contemplation about their dreams. Participants were asked to write down several of their dreams in detail, but these responses were unrelated to the study hypotheses and not included in the analyses. Participants then appraised the emotions felt during an average dream. The emotion items were identical

Table 1. Means, Standard Deviations, and Bivariate Correlations Among Major Study Variables (N = 207).

	Subjective Well-Being		
	Life Satisfaction	Positive Affect	Negative Affect
1. Attitude Towards Dreaming M = 3.69, SD = .53	.15*	.16*	-.01
2. Positive Dream Affect M = 2.86, SD = .81	.15*	.51***	.20**
3. Negative Dream Affect M = 1.98, SD = .62	-.24**	.15*	.52***

* p < .05, ** p < .01, *** p < .001

to those used above for assessing trait affect; some of these emotion items were taken from previous research (e.g., Merritt et al., 1994; Selterman & Drigotas, 2009), and meant to capture the diversity in emotional experience (rated on 5-point Likert scales). Dream emotions were grouped into positive and negative emotion categories. Reliability was good for both positive dream affect ($\alpha = .92$) and negative dream affect ($\alpha = .85$).

Subjective Well-Being. Based on the tripartite model of subjective well-being (Busseri & Sadava, 2011; Diener, 1984), the current study assessed life satisfaction, trait positive affect, and trait negative affect. Participants completed the 5-item Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; $\alpha = .90$), with items rated on a 7-point Likert scale. In addition, participants completed a modified version of the widely used Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988), with 22 total items (11 for each) and with items rated on a 5-point Likert scale, for how participants felt on an average day. Additional items were intended to capture a broader range of emotional experience and included such items as affection, pleasure, jealousy, guilt, etc. Reliability was good for both positive affect ($\alpha = .86$) and negative affect ($\alpha = .86$).

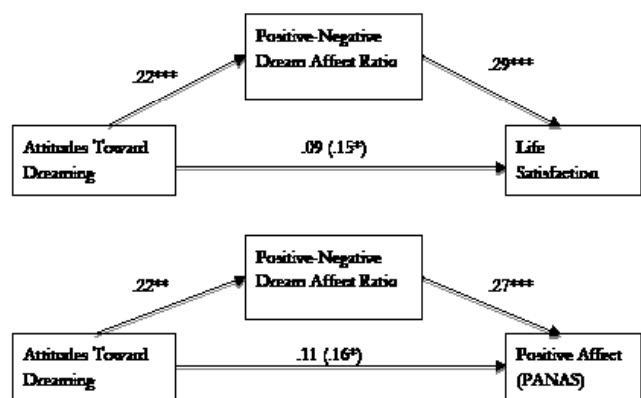
3. Results

For the sake of clarity in the results reported below, waking affect refers to subjective well-being variables (assessing appraisal of emotions experienced while awake), in contrast to dream affect variables (assessing appraisal of emotions experienced while dreaming). As expected based on previous literature, life satisfaction was associated with positive waking affect ($r = .39, p < .001$) and inversely with negative waking affect ($r = -.40, p < .001$). Positive waking affect and negative waking affect were not significantly associated with each other ($r = .08$).

It was hypothesized that attitudes/beliefs concerning dreams would be associated with subjective well-being variables. Consistent with Hypothesis 1, positive attitude toward dreaming was significantly associated with appraised positive dream affect ($r = .40, p < .001$) as well as life satisfaction and positive waking affect ($r = .15, p = .029$ and $r = .16, p = .019$, respectively). Contrary to Hypothesis 1, positive attitude toward dreaming was not significantly associated with negative waking affect ($r = -.01$). Positive dream affect was associated with both positive and negative waking affect ($r = .51, p < .001$ and $r = .20, p = .004$, respectively), while negative dream affect was also associated with both

positive and negative waking affect ($r = .15, p = .027$ and $r = .52, p < .001$, respectively). This indicates a general tendency toward greater emotionality across dreams and waking experiences. Life satisfaction was also associated with positive dream affect ($r = .15, p = .031$) and inversely with negative dream affect ($r = -.24, p = .001$). Bivariate correlations, along with means and standard deviations for study variables are displayed in Table 1.

It was also hypothesized that the ratio of positive to negative dream affect, the key indicator of an affect appraisal bias, would be the mediational link between attitude towards dreams and subjective well-being. In order to test for mediation, I followed the steps outlined in Hayes (2008) for bias-corrected bootstrapping techniques using 5000 samples in INDIRECT software (designed for SPSS). As shown in Figure 1 and consistent with Hypothesis 2, the ratio of positive to negative dream affect fully mediated the association between attitudes toward dreaming and life satisfaction (Sobel $z = 2.56, p = .011, 95\% \text{ CI: } .03, .12$). Furthermore, the ratio of positive to negative dream affect fully mediated the association between attitudes toward dreaming and positive waking affect (Sobel $z = 2.48, p = .022, 95\% \text{ CI: } .01, .11$). Controlling for emotional intensity in dreams and gen-



*p < .05, **p < .01, ***p < .001

Figure 1. Mediation models for the ratio of positive to negative dream affect as a mediator of the association between attitudes toward dreaming and subjective well-being outcomes (life satisfaction and positive affect). Standardized coefficients are displayed

eral dream recall/frequency as covariates in two additional mediational models revealed nearly identical results; both tests for mediation remained statistically significant and confidence intervals were nearly identical.

4. Discussion

The current study revealed that attitudes toward dreaming, as well as appraisal of dreams as more emotionally positive than negative, were associated with increased subjective psychological well-being. To the degree that participants expressed positive attitudes/beliefs about dreaming, they also reported greater life satisfaction and greater positive waking affect. These associations were fully mediated by the degree to which participants recalled having more positive dream affect relative to negative dream affect. These data add to our understanding of a psychologically healthy emotional profile. When prompted to consider dreams in general, participants with more life satisfaction and more positive waking affect held a more positive attitude toward dreaming, and when they were prompted to consider their own dreams, they recalled a higher ratio of positive to negative affect. Importantly, these results held up while statistically controlling for two other variables that are associated with personality and known to predict dreaming outcomes: general dream recall/frequency and emotional intensity of dreams.

These results suggest that there is some degree of correspondence between perception of dreams and psychological health. The data suggest that when people appraise their dreams as more affectively positive than negative, even though this may be a factual error (typical dreams have more negative than positive emotion; Domhoff, 2007), they also show a more positive attitude toward dreams and greater subjective well-being.

Results from the current study help clarify somewhat inconsistent results from previous work in this area. Attitudes toward dreaming, along with a general appraisal of one's own dreams as more affectively positive than negative, should be included in tandem with research examining links between dreams emotion and subjective well-being. Although some research has shown non-significant associations between dreaming and well-being variables, the current study reveals that upon reflection, those with higher well-being measures construe a more positive profile of their dreams and a more positive attitude towards them.

Contrary to the main hypothesis, a significant association did not emerge between attitudes toward dreaming and negative waking affect. To some extent this is consistent with previous work, given that the tripartite model of psychological well-being (life satisfaction, positive affect, negative affect) encompasses 3 overlapping yet distinct dimensions of psychological health (Busseri & Sadava, 2010; Diener, 1984). Although negative waking affect was associated with having more appraised negative dream affect and less appraised positive dream affect, when these variables were examined as a composite ratio of appraised dream emotionality, the association did not approach significance.

It is notable that the positivity bias found here was for conscious appraisal of dream content. Previous research has found evidence for an implicit positivity bias in domains such as language and communication (Dodds, Clark, Desu, Frank, Reagan, Williams, et al., 2015), which is generally referred to as the "Pollyanna hypothesis" (Boucher & Osgood, 1969). However, this theory suggests that the posi-

tivity bias is more implicit, whereas conscious appraisals are actually more negative. The data in the current study speak to a more conscious positivity bias that may function differently than other positivity biases demonstrated in the literature. Furthermore, the idea that "bad is stronger than good" permeates many lines of research including stereotypes, close relationships, etc. (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Gottman, 1979; 1994). Thus, we cannot conclude that the dream appraisal positivity bias operates similarly to other positive/negative biases found in the literature.

One limitation of the current study is that these variables were assessed in a cross-sectional design, and although participants were prompted to think carefully about their dreaming experiences generally, no specific dreams were reported. However, this study was not designed to assess specific dream content. Rather, the main hypotheses/predictions for the current study involved people's attitudes/beliefs toward dreams as well as their appraisal of positive and negative emotions experienced. Future research would do well to examine the possibility that perceptions of dreaming (attitudes, beliefs, and emotional appraisal) change as a function of intentionally recording/remembering dreams. While some research has shown that dream recall frequency increases as a function of increased intentionality (Schredl, 2007), it is unclear whether attitudes toward dreaming or perceived emotional experiences in dreams would change as well. In addition, subjective psychological well-being variables (e.g., positive and negative affect, life satisfaction) are usually assessed cross-sectionally in mainstream studies that do not involve dreaming (Diener, Oishi, & Lucas, 2009). Future research should examine further how attitudes and beliefs about dreaming, when collected through diaries, are associated with changes in subjective well-being over time. It is also possible that the reflection process concerning positive and negative emotion in dreams could be manipulated experimentally, and this could produce a different pattern of responding about attitudes toward dreaming and subjective well-being. This may also indicate that the manner in which researchers extract information about dreams can affect participants' emotional appraisal. It would be beneficial to examine whether participants' dream recall is more positive or negative depending on whom they believe will see their dream content.

Of course, there are other theoretical models aside from the continuity hypothesis that can explain connections between dream content and waking experiences. For instance, some have proposed that dream content is closely linked with attachment bonds (e.g., McNamara, 1996; Zborowski & McNamara, 1998). Some evidence exists that dream content varies according to feelings of security in close relationships (McNamara, Andresen, Clark, Zborowski, & Duffy, 2001; McNamara, Pace-Schott, Johnson, Harris, & Auerbach, 2011; Selterman, Apetroaia, & Waters, 2012; Selterman & Drigotas, 2009) and other evidence shows that daily waking experiences are linked with relationship-oriented dream content (see Mikulincer, Shaver, & Avihou-Kanza, 2011; Mikulincer, Shaver, Sapir-Lavid, & Avihou-Kanza, 2009; Selterman, Apetroaia, Riel, & Aron, 2014). Thus, associations between dreams and well-being may be more geared toward specific relationship experiences rather than general life experiences.

Most research on patterns of dreaming is concerned with dysfunction and psychopathology. With increasingly inte-

grative research across disciplines, scientists can consider the role for dreams in the profile of a psychologically healthy individual, as well as potential for positive interventions to increase individuals' psychological well-being by fostering a healthier emotional profile in dreams. In conclusion, while seeking a deeper understanding of emotional health and well-being outcomes, researchers can benefit from incorporating the scientific study of dreams as an emotional-cognitive variable that predicts subjective well-being.

Acknowledgments

Special thanks to Jenn Loya for help with data collection, as well as Jesse Wilkinson and Adela Apetroaia for comments/feedback on the manuscript.

References

- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review Of General Psychology*, 5(4), 323-370. doi:10.1037/1089-2680-5.4.323
- 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(1), 51-59.
- Boucher, J., & Osgood, C. E. (1969). The Pollyanna hypothesis. *Journal Of Verbal Learning & Verbal Behavior*, 8(1), 1-8. doi:10.1016/S0022-5371(69)80002-2
- Brown, K., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal Of Personality And Social Psychology*, 84(4), 822-848.
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.
- Busseri, M. A., & Sadava, S. W. (2010). A review of the tripartite structure of subjective well-being: Implications for conceptualization, operationalization, analysis, and synthesis. *Personality and Social Psychology Review*, 15(3), 290-314.
- Cartwright, R. D. (1991). Dreams that work: The relation of dream incorporation to adaptation to stressful events. *Dreaming*, 1(1), 3-9.
- Cartwright, R., Agargun, M. Y., Kirkby, J., & Friedman, J. K. (2006). Relation of dreams to waking concerns. *Psychiatry Research*, 141(3), 261-270.
- Cartwright, R., Young, M. A., Mercer, P., & Bears, M. (1998). Role of REM sleep and dream variables in the prediction of remission from depression. *Psychiatry Research*, 80(3), 249-255.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542-575.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71-75.
- Diener, E., Oishi, S., & Lucas, R. E. (2009). Subjective well-being: The science of happiness and life satisfaction. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed.). (pp. 187-194). New York, NY US: Oxford University Press.
- Dodds, P. S., Clark, E. M., Desu, S., Frank, M. R., Reagan, A. J., Williams, J. R., & ... Danforth, C. M. (2015). Human language reveals a universal positivity bias. *PNAS Proceedings Of The National Academy Of Sciences Of The United States Of America*, 112(8), 2389-2394. doi:10.1073/pnas.1411678112
- Domhoff, G. W. (2007). Realistic simulation and bizarreness in dream content: Past findings and suggestions for future research. In D. Barrett & P. McNamara (Eds.), *The new science of dreaming: Volume 2. Content, recall, and personality correlates*. (pp. 1-27). Westport, CT US: Praeger Publishers/Greenwood Publishing Group.
- Gilchrist, S., Davidson, J., & Shakespeare-Finch, J. (2007). Dream emotions, waking emotions, personality characteristics and well-being--A positive psychology approach. *Dreaming*, 17(3), 172-185.
- Gottman, J. (1994). *Why marriages succeed or fail*. New York: Simon & Schuster.
- Gottman, J. M. (1979). *Marital interaction*. New York: Academic Press.
- Hall, C. S., & Van De Castle, R. L. (1966). *The content analysis of dreams*. East Norwalk, CT US: Appleton-Century-Crofts.
- McNamara, P. (1996). REM sleep: A social bonding mechanism. *New Ideas In Psychology*, 14(1), 35-46. doi:10.1016/0732-118X(95)00023-A
- McNamara, P., Andresen, J., Clark, J., Zborowski, M., & Duffy, C. A. (2001). Impact of attachment styles on dream recall and dream content: A test of the attachment hypothesis of REM sleep. *Journal Of Sleep Research*, 10(2), 117-127. doi:10.1046/j.1365-2869.2001.00244.x
- McNamara, P., Pace-Schott, E. F., Johnson, P., Harris, E., & Auerbach, S. (2011). Sleep architecture and sleep-related mentation in securely and insecurely attached people. *Attachment & Human Development*, 13(2), 141-154. doi:10.1080/14616734.2011.553999
- Merritt, J. M., Stickgold, R., Pace-Schott, E., & Williams, J. (1994). Emotion profiles in the dreams of men and women. *Consciousness and Cognition: An International Journal*, 3(1), 46-60.
- Mikulincer, M., Shaver, P. R., & Avihou-Kanza, N. (2011). Individual differences in adult attachment are systematically related to dream narratives. *Attachment & Human Development*, 13(2), 105-123. doi:10.1080/14616734.2011.553918
- Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment-style dimensions. *Journal Of Personality And Social Psychology*, 97(4), 615-633. doi:10.1037/a0015649
- 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.
- Myers, D. G., & Diener, E. (1995). Who is happy?. *Psychological Science*, 6(1), 10-19.
- Nielsen, T. A., Deslauriers, D., & Baylor, G. W. (1991). Emotions in dream and waking event reports. *Dreaming*, 1(4), 287-300.
- Pesant, N., & Zadra, A. (2006). Dream content and psychological well-being: A longitudinal study of the continuity hypothesis. *Journal of Clinical Psychology*, 62(1), 111-121.
- Schredl, M., Ciric, P., Götz, S., & Wittmann, L. (2003). Dream recall frequency, attitude towards dreams and openness to experience. *Dreaming*, 13(3), 145-153.

- Schredl, M., & Hofmann, F. (2003). Continuity between waking activities and dream activities. *Consciousness and Cognition: An International Journal*, 12(2), 298-308.
- Schredl, M., Nürnberg, C., & Weiler, S. (1996). Dream recall, attitude toward dreams, and personality. *Personality and Individual Differences*, 20(5), 613-618.
- Seltermann, D. F., Apetroaia, A. I., Riehl, S., & Aron, A. (2014). Dreaming of you: Behavior and emotion in dreams of significant others predict subsequent relational behavior. *Social Psychological And Personality Science*, 5(1), 111-118. doi:10.1177/1948550613486678
- Seltermann, D., Apetroaia, A., & Waters, E. (2012). Script-like attachment representations in dreams containing current romantic partners. *Attachment & Human Development*, 14(5), 501-515. doi:10.1080/14616734.2012.706395
- Seltermann, D., & Drigotas, S. (2009). Attachment styles and emotional content, stress, and conflict in dreams of romantic partners. *Dreaming*, 19(3), 135-151.
- St-Onge, M. I., Lortie-Lussier, M., Mercier, P., Grenier, J., & De Koninck, J. (2005). Emotions in the Diary and REM Dreams of Young and Late Adulthood Women and Their Relation to Life Satisfaction. *Dreaming*, 15(2), 116-128.
- Watson, D., Clark, L. A., Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.
- Zborowski, M. J., & McNamara, P. (1998). Attachment hypothesis of REM sleep: Toward an integration of psychoanalysis, neuroscience, and evolutionary psychology and the implications for psychopathology research. *Psychoanalytic Psychology*, 15(1), 115-140. doi:10.1037/0736-9735.15.1.115