

# Stress as a Moderator of the Relationship Between Alexithymia and Dreaming: Research Findings

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*A study was carried out to investigate the relationship between alexithymia and dreaming, and stress as a moderator of that relationship. The aspects of dreaming considered were the number of remembered dreams, the number of nightmares experienced, the number of instances of sleep paralysis, and the number of lucid dreams. Based on the subject literature, there was assumed to exist a positive correlation between alexithymia and the number of nightmares, as well as negative correlations between alexithymia and numbers of remembered dreams, instances of sleep paralysis, and lucid dreams. A group of 82 persons was studied (41 women and 41 men), with the use of the Toronto Alexithymia Scale-20 and Perceived Stress Scale-10 questionnaires and a modified version of the Mannheim Dream Questionnaire. There was shown to exist a negative relationship between 2 aspects of alexithymia—difficulties in verbalizing feelings and operative thinking style—and the number of remembered dreams. Significant relationships were also discovered between the level of stress and the number of nightmares experienced or the level of alexithymia, particularly with regard to difficulties in the identification and verbalization of feelings. It therefore appears that dreaming has a specific manifestation in the case of people with alexithymia and may become an important element in the diagnosis of that disorder.*

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**Keywords:** alexithymia, dreaming, stress

Alexithymia is a particular deficit in the process of recognizing and describing feelings and emotions. It has been defined as a construct encompassing the following dimensions: difficulties in the identification and verbalization of emotions, difficulties in distinguishing between emotions and the accompanying physiological excitation, poverty of imagination, and an operative thinking style, characterized by concentration on external matters instead of personal experiences (Taylor, 1994).

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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Alexithymia is not classed as a mental disorder; it is a phenomenon occurring in the population as a whole and follows a normal distribution. Just as people differ in their ability to understand and describe feelings and emotions, everyone has a certain level of alexithymia and its components, and in most people this level is moderate. Extremely high levels of alexithymia affect only 13% of the population; they are more frequent in the case of people with lower socioeconomic status and a lower level of education and are more frequent among men (17%) than among women (10%; Płońska & Czernikiewicz, 2006).

Although people with alexithymia may give the impression of being controlled and rational, they incur high energy costs in suppressing emotions, and psychological tension, instead of being released, remains for a long time and causes discomfort. For that reason, people in this group exhibit many medically confirmed physical and mental conditions. Their characteristics include susceptibility to infections, a risk of hypertension, eating disorders, and a tendency to suffer from addictions and mental disorders (Zdankiewicz-Ścigała, 2017). Researchers have also found that people with alexithymia experience sleep disorders (Nielsen et al., 2011; Rohoza & Obrębska, 2020). Bauermann et al. (2008) conducted an interesting study that focused on sleep difficulties and their connection with alexithymia. Participants with high scores on the Toronto Alexithymia Scale-20 (TAS-20) questionnaire reported experiencing several sleep-related issues: insomnia, hypersomnia, nightmares, and sleepwalking. These issues had no link to poor sleep hygiene or poor frame of mind, which may imply that alexithymia can have a significant impact not only on dreaming but also on sleep experiences; this suggests that the above-mentioned issues may be symptomatic for alexithymia. In our study, we aimed to determine whether there exists a relationship between the level of alexithymia and dreaming, and whether stress acts as a moderator, reinforcing the relationships between the variables.

### Alexithymia, Stress, and Dreams

Alexithymia has remained a constant focus of scientific interest for more than 40 years. Research began in the 1970s, and the term was introduced by the American psychiatrist Peter Sifneos (1973), who formed it from the three Greek words *a*, *lexis*, and *thymos*, meaning respectively “lack,” “word,” and “emotion.” The originator of the concept worked mainly with people suffering from psychosomatic disorders and observed that many of them had difficulties finding words to describe their emotional state, as if they had no understanding at all of what the experiencing of emotion was. Through further studies of patients with other disorders, such as personality disorders and addiction to psychoactive substances, Sifneos discovered that difficulties in describing emotions occurred in these cases also, making alexithymia a construct extending beyond symptoms related to psychosomatic disorders.

A distinction is now made between organic, primary, and secondary alexithymia, depending on the origin of the disorder (Messina et al., 2014). Of the studies that have contributed to the creation of a vast body of knowledge on alexithymia, the majority concern people with primary alexithymia, which may be caused by childhood trauma or negative childhood experiences. For this reason, this type of alexithymia is currently regarded as a more or less stable personality trait, shaped in childhood and early adulthood. Secondary alexithymia, on the other hand, arises not in the course of development,

but as a result of certain life events. These events may be psychologically significant and/or health-related (diseases or disorders), having a direct or indirect effect on the brain's functioning. Thus, secondary alexithymia may have both psychological and somatic mechanisms. Apart from somatic symptoms, alexithymia may in some cases be linked to mental illnesses. Primary alexithymia is then a risk factor for the development of the mental illness, whereas secondary alexithymia arises as a consequence of the development of such an illness.

Alexithymia is a phenomenon that significantly restricts the ability to examine one's own emotional states, and thus to identify and understand the information received from the emotions that one experiences. Because of the inability to grasp and name an emotion, people with alexithymia feel emotional excitation but are not able to talk about it—they lack words to describe their experienced state in a concrete manner. This situation also causes an inability to apply adequate emotional control techniques that are appropriate to what is currently being experienced, and this means that people with alexithymia employ inflexible strategies for coping with emotions (Luminet et al., 2018; Thompson, 2009; Zimmermann et al., 2005).

In view of the strong link between stress and emotions, it appears to be of interest to determine how people having a problem with defining their experienced emotional states react to potentially stressful situations. In a study by Connelly and Denney (2007), people with alexithymia underwent experiments that served to trigger a stress response, measured with an instrument that checked the patient's pulse and galvanic skin response. The researchers also obtained feedback from subjects to establish how often they experienced negative affect. Persons with high alexithymia reported greater negative affect than the control group. However, the autonomic system response did not differ significantly between the groups. This implies that individuals with alexithymia are not prone to a stronger physiological response to stress, but because of difficulty in regulating their emotions, they experience prolonged negative affect, with which they are unable to cope effectively, and this indirectly leads to a higher level of stress. Alexithymia in combination with long-lasting negative affect and a high level of stress may lead to a number of disorders, including eating disorders, and susceptibility to addiction and mental disorders (Zdankiewicz-Ścigała, 2017). People with alexithymia also exhibit numerous disorders in the experiencing of dreams, the forms of which correspond to the main symptoms of alexithymia (Bauermann et al., 2008; Rohoza & Obrębska, 2020).

The main problem associated with alexithymia is the inability to recognize and verbalize feelings. For this reason, people suffering from this disorder are not able to create mental representations of feelings and emotions, and consequently behave like "emotional illiterates," unable to read the emotions of others or to convey information to others about their own state. This has consequences for the remembering of dreams and their affective valence. Studies show (De Gennaro et al., 2003; Lumley & Bazydło, 2000; Nielsen et al., 2011) that people with alexithymia indeed remember fewer dreams, and those that are remembered are devoid of emotional color or are colored negatively. Inadequate emotional processing is also evidenced by the presence of intrusive manifestations of emotional activity such as nightmares (Bauermann et al., 2008).

Another aspect of alexithymia is an inability to distinguish physical symptoms from excitation triggered by significant experiences. This means that people with

alexithymia perceive their state as being caused solely by external stimuli and not by processes taking place in their psyche and wrongly interpret their own emotion as physiological excitation (or vice versa), which can lead to hypochondria and somatization. In sleep, this may manifest in atypical somatic responses, such as “sleep bruxism,” characterized by regular grinding of the teeth (Przystańska et al., 2019).

Another characteristic of alexithymic people is an operative thinking style, involving excessive focus on specifics and details, accompanied by difficulties in thinking abstractly, and by limited imagination. Additional features include an absence of fantasizing, which leads to poor creativity and difficulties in creating one’s own problem-solving strategies (Czernecka & Szymura, 2008). This lack of creativity in alexithymia may be considered a significant factor in certain dream experiences. Lucid dreaming was researched by Schredl and Erlacher (2004), in a study that aimed to determine whether lucid dreaming is a rare experience, as well as its links to personality traits. The results were as follows: (a) 82% of participants reported having experienced lucid dreaming at least once in their lifetime; (b) Lucid dreaming displayed small correlations with one Big Five personality trait—openness to experience, which is also associated with imagination, ideas, and fantasy. This may prove to be a significant factor for lucid dream experiences in alexithymia. Another dream experience that may be linked to creativity, and thus may have an impact on alexithymia, is sleep paralysis. According to a study by Spanos et al. (1995), 21% of participants had experienced sleep paralysis at least once; there were no significant gender differences. A variable that proved to have an impact on the experiencing of sleep paralysis was imaginativeness; the researchers claim that this may be because people with high scores in this area are more likely to add a story to a sound they think they heard while falling asleep—they may then try to move to see what it was and experience sleep paralysis. Again, if alexithymia is linked to a lack of creativity, this dream experience may appear less often in people with high alexithymia scores. Naturally, a poverty of imagination also leads to a lower intensity of dreaming, and to dreams that can be described as sterile and lacking emotional color, as has already been mentioned in the description of earlier research results (Lumley & Bazydło, 2000; Parker et al., 2000).

The way in which dreams are experienced may thus be linked to many factors, and disturbance of the proper course of sleep may often prove to be a symptom of disorders. The aforementioned phenomena, including nightmares, sleep paralysis, lucid dreaming, and the frequency of remembering dreams, may have specific manifestations in the case of people with alexithymia, and may thus become an important element in the diagnosis of that disorder. In our research, we decided to investigate whether there exists a link between the level of alexithymia and dreaming, and whether stress acts as a moderator, reinforcing the relationships between the variables.

### The Research

The aim of our research was to verify the relationships between alexithymia, dreaming, and stress as a moderator of relationships between the variables. It took account of such aspects of dreaming as the number of remembered dreams, the number of nightmares experienced, the number of instances of sleep paralysis, and the number of lucid dreams. Based on the subject literature (Bauermann et al.,

2008; Schredl & Erlacher, 2004; Spanos et al., 1995), there was assumed to exist a positive correlation between alexithymia and the number of nightmares experienced, and negative correlations between alexithymia and the numbers of remembered dreams, instances of sleep paralysis, and lucid dreams.

To test subjects' level of alexithymia, use was made of the TAS-20 questionnaire developed by Taylor, Bagby, and Parker (Polish adaptation: Ścigała et al., 2020). This tool includes three scales: (a) Difficulties in Identifying Feelings and Distinguishing Them From Physiological Responses; (b) Difficulties in Verbalizing Feelings; and (c) Operative Thinking Style. The level of stress was measured using the Perceived Stress Scale-10 of Cohen, Kamarck, and Mermelstein, in its Polish adaptation by Juczyński and Ogińska-Bulik (2009). Dreaming was investigated using the Mannheim Dream Questionnaire created by Schredl et al. (2014). Only certain of the items were used in the study; these related to the frequencies of remembered dreams, nightmares, experiences of sleep paralysis, and lucid dreams.

The survey was completed online using Google Forms, between 28 January and 17 February 2020. This was done by a group of 131 persons, consisting of 89 women and 42 men. The results of three subjects were rejected because they were aged under 18 years. Next, using a pair matching method, 46 results from women were excluded, in such a way as to obtain two groups (by gender) as similar as possible in terms of demographic characteristics such as age and level of education. The final study group consisted of 82 persons: 41 men and 41 women. Subjects were aged from 22 to 58 years ( $M = 29.5$ ;  $SD = 7.54$ ) and were placed in three categories by level of education: high school educated (20.73%; 17 persons), undergraduates (20.73%; 17 persons), and graduates (58.54%; 48 persons).

## Results

Results of measurement of the level of alexithymia in subjects ranged from 24 to 88 points ( $M = 50$ ;  $SD = 13.84$ ), corresponding to the following levels: low alexithymia (45 persons; 55.56%), moderate alexithymia (18 persons; 21.95%) and high alexithymia (19 persons; 23.17%). The measured level of stress ranged from 2 to 37 ( $M = 22$ ;  $SD = 7.90$ ), with the following levels of perceived stress in the last month: low stress (15 persons; 18.29%), moderate stress (21 persons; 25.61%), and high stress (46 persons; 56.1%).

The results of the frequencies of dream experiences remembered by subjects are presented in Table 1.

To test the research hypotheses, computations were made of correlation coefficients—Spearman's rho and Pearson's  $r$ —depending on the distribution of the studied variable. The number of remembered dreams was found to have weak negative correlations with difficulties in verbalizing feelings ( $r_s = -.23$ ;  $p < .05$ ) and operative thinking style ( $r_s = -.26$ ;  $p < .05$ ). The relationships between alexithymia and numbers of nightmares ( $r_s = .08$ ;  $p > .05$ ), instances of sleep paralysis ( $r_s = .07$ ;  $p > .05$ ), and lucid dreams ( $r_s = -.07$ ;  $p > .05$ ) were not statistically significant. However, a significant relationship was found between stress level and frequency of nightmares ( $r_s = .35$ ;  $p < .01$ ) and between stress level and level of alexithymia ( $r = .44$ ;  $p < .01$ ). The higher the stress level, the greater the frequency of nightmares and the higher the level of alexithymia. Stress is correlated particularly strongly with two

**Table 1**  
*Frequencies of Dream Experiences*

	<i>N</i>	%
Dream recall frequency		
No recalled dreams	5	6.1
Once a month	6	7.23
Two or three a month	17	20.73
Once a week	12	14.63
Several times a week	25	30.49
Almost every morning	17	20.73
Nightmare frequency		
No recalled nightmares	32	39.02
Once a month	26	31.71
Two or three a month	13	15.85
Once a week	4	4.88
Several times a week	4	4.88
Almost every night	3	3.66
Sleep paralysis frequency		
No experienced sleep paralysis	70	85.37
Once a month	9	10.98
Two or three a month	1	1.2
Once a week	2	2.44
Lucid dreams frequency		
No experienced lucid dreams	47	57.3
Once a month	14	17.1
Two or three a month	6	7.3
Once a week	7	8.5
Several times a week	4	4.9
Almost every night	4	4.9

dimensions of alexithymia: difficulties in identifying feelings ( $r_s = .53$ ;  $p < .01$ ) and difficulties in verbalizing feelings ( $r = .33$ ;  $p < .01$ ). Operative thinking style was not significantly correlated ( $r = .16$ ;  $p > .05$ ).

The results of the correlation between alexithymia, stress and sleep/dream measures are presented in [Table 2](#).

Despite the relationships demonstrated between stress and alexithymia and between stress and nightmares, the hypothesis that stress plays a moderating role was not confirmed. The analysis of moderation performed in the Process<sup>1</sup> extension did not confirm the moderating role of stress between alexithymia and numbers of remembered dreams ( $p = .85$ ;  $p > .05$ ), nightmares ( $p = .68$ ;  $p > .05$ ), instances of sleep paralysis ( $p = .85$ ;  $p > .05$ ), or lucid dreams ( $p = .24$ ;  $p > .05$ ). Therefore, the hypothesized moderating role of stress between alexithymia and dream experiences was not found to be significant.

## Discussion

This study has demonstrated the existence of a negative relationship between the number of remembered dreams and two aspects of alexithymia: difficulties in

<sup>1</sup>PROCESS is an observed variable ordinary least squares and logistic regression path analysis modeling tool. It is widely used through the social, business, and health sciences for estimating direct and indirect effects in single and multiple mediator models (parallel and serial), two- and three-way interactions in moderation models along with simple slopes and regions of significance for probing interactions, and conditional indirect effects in moderated mediation models with a single or multiple mediators or moderators.

**Table 2**  
*Correlations Between Alexithymia, Stress, and Dream Experiences*

Dimensions of alexithymia	Dream recall frequency	Nightmares	Sleep paralysis	Lucid dreaming	Stress
Alexithymia	-0.11	0.08	0.07	-0.07	0.44**
Difficulties in verbalizing feelings	-0.23*	0.05	0.05	-0.19	0.33**
Difficulties in describing feelings	-0.071	0.17	0.20	0.03	0.53**
Operative thinking style	-0.25*	-0.14	-0.16	-0.01	0.16

Note.  $N = 82$ .

\*  $p < .05$ . \*\*  $p < .01$ .

verbalizing feelings and operative thinking style. Stress level was also found to have significant correlations with the frequency of nightmares and with the level of alexithymia, particularly in relation to difficulties in identifying and verbalizing feelings. A higher level of stress implies a higher frequency of nightmares and a higher level of alexithymia.

These results are consistent with those in the subject literature, which indicate a relationship between alexithymia and the number of remembered dreams (Bauer-mann et al., 2008; Lumley & Bazydlo, 2000; Nielsen et al., 2011). Poverty of imagination and a low level of creativity, which are components of an operative thinking style, may mean that people with alexithymia have dreams that are more schematic and less expressive, and are thus less well remembered. In addition, difficulties in verbalizing feelings may affect the process of reconstructing and decoding dreams. These theses would require additional verification through analysis of the content of dreams and the problems arising in reconstructing them.

Relationships between stress and the frequency of nightmares have also been confirmed by numerous studies. For example, a study by Rek et al. (2017) investigated factors that might predispose an individual to experience nightmares. Factors found to be particularly significant were symptoms of posttraumatic stress disorder (PTSD), negative affect, and stressful life events, which have an emotional and cognitive representation in nightmares (Li et al., 2010; Picchioni et al., 2002). Many researchers also consider alexithymia to be a response to experienced stress or trauma (Connelly & Denney, 2007). In an interesting study by Yehuda et al. (1997), the subjects were Holocaust survivors, divided into a group with PTSD and a group not displaying symptoms of that disorder. The level of alexithymia in all subjects was measured using the TAS-20 questionnaire, and was then compared with the intensity of symptoms of PTSD. Alexithymia was found to have a significant relationship with the occurrence of PTSD, although experienced trauma was not itself a determinant of high TAS-20 scores. According to Zdankiewicz-Ścigala (2017), alexithymia may contribute to the maintenance and reinforcement of symptoms resulting from PTSD, in view of the difficulty in coping with negative emotions that characterizes people with alexithymia, and which may lead indirectly to the maintenance of a maladaptive organic response to stress. This observation may explain the failure to confirm the hypothesis of the moderating role of stress in the relationship between alexithymia and dreaming. It suggests that rather alexithymia ought to perform the role of a moderator (or mediator) between stress and dreaming, leading to disorders in the regulation of emotions and the sustaining of negative affect. Naturally, this hypothesis would require testing in a further empirical study.

The lack of confirmation for the remaining hypotheses may also result from limitations of the present study. The study group was not large and was of nonclinical type, and hence levels of alexithymia and stress were mostly close to average. Moreover, the questionnaire-based methods used would require supplementation. In the case of sleep paralysis and lucid dreaming, the hypothesis advanced was based on studies indicating their relationship with levels of creativity and richness of imagination (Schredl & Erlacher, 2004; Spanos et al., 1995). The TAS-20 questionnaire used in this study does not diagnose creativity and imagination, only the operative thinking style typical of alexithymia, and these are not identical constructs. For this reason, it would be beneficial in future studies to incorporate additional methods that more accurately and directly indicate the level of creativity and imagination in people with alexithymia. This would provide a more accurate view of the potential interactions of alexithymia, sleep paralysis, and lucid dreaming.

In view of the widespread nature of alexithymia and the difficulties in emotional functioning that are associated with it, it is important that these issues should be the subject of scientific investigation. It appears that dreaming has a specific manifestation in the case of people with alexithymia and may become an important element in the diagnosis of that disorder. The analysis of dreams may not only help to understand alexithymia but may also serve to support people with alexithymia in their everyday functioning. Despite the still limited literature on the relationship between alexithymia and dreaming, the present research would appear to have produced promising results that give encouragement for further study in this area.

## References

- Bauermann, T. M., Parker, J. D. A., & Taylor, G. J. (2008). Sleep problems and sleep hygiene in young adults with alexithymia. *Personality and Individual Differences, 45*(4), 318–322. <https://doi.org/10.1016/j.paid.2008.04.019>
- Connelly, M., & Denney, D. R. (2007). Regulation of emotions during experimental stress in alexithymia. *Journal of Psychosomatic Research, 62*(6), 649–656. <https://doi.org/10.1016/j.jpsychores.2006.12.008>
- Czernecka, K., & Szymura, B. (2008). Alexithymia—imagination—creativity. *Personality and Individual Differences, 45*(6), 445–450. <https://doi.org/10.1016/j.paid.2008.05.019>
- De Gennaro, L., Ferrara, M., Cristiani, R., Curcio, G., Martiradonna, V., & Bertini, M. (2003). Alexithymia and dream recall upon spontaneous morning awakening. *Psychosomatic Medicine, 65*(2), 301–306. <https://doi.org/10.1097/01.PSY.0000058373.50240.71>
- Juczyński, Z., & Ogińska-Bulik, N. (2009). *Narzędzia pomiaru stresu i radzenia sobie ze stresem* [Tools for the measurement of stress and coping with stress]. Pracownia Testów Psychologicznych.
- Li, S. X., Zhang, B., Li, A. M., & Wing, Y. K. (2010). Prevalence and correlates of frequent nightmares: A community-based 2-phase study. *Sleep, 33*(6), 774–780. <https://doi.org/10.1093/sleep/33.6.774>
- Luminet, O., Bagby, R. M., & Taylor, G. J. (2018). *Alexithymia: Advances in research, theory, and clinical practice*. Cambridge University Press. <https://doi.org/10.1017/9781108241595>
- Lumley, M. A., & Bazydło, R. A. (2000). The relationship of alexithymia characteristics to dreaming. *Journal of Psychosomatic Research, 48*(6), 561–567. [https://doi.org/10.1016/S0022-3999\(00\)00096-9](https://doi.org/10.1016/S0022-3999(00)00096-9)
- Messina, A., Beadle, J., & Paradiso, S. (2014). Towards a classification of alexithymia: Primary, secondary and organic. *Journal of Psychopathology, 20*(1), 38–49.
- Nielsen, T., Levrier, K., & Montplaisir, J. (2011). Dreaming correlates of alexithymia among sleep-disordered patients. *Dreaming, 21*(1), 16–31. <https://doi.org/10.1037/a0022861>
- Parker, J. D. A., Bauermann, T. M., & Smith, C. T. (2000). Alexithymia and impoverished dream content: Evidence from rapid eye movement sleep awakenings. *Psychosomatic Medicine, 62*(4), 486–491. <https://doi.org/10.1097/00006842-200007000-00006>
- Picchioni, D., Goeltzenleucher, B., Green, D. N., Convento, M. J., Crittenden, R., Hallgren, M., & Hicks, R. A. (2002). Nightmares as a coping mechanism for stress. *Dreaming, 12*(3), 155–169. <https://doi.org/10.1023/A:1020118425588>



- Płońska, D., & Czernikiewicz, A. (2006). Aleksytymia—ciągle wiele pytań. Część I. Definiowanie aleksytymii [Alexithymia—there are still a lot of questions. Part I. Definition of alexithymia]. *Psychiatria*, 3(1), 1–7.
- Przystańska, A., Jasielska, A., Ziarko, M., Pobudek-Radzikowska, M., Maciejewska-Szaniec, Z., Prylińska-Czyżewska, A., Wierzbik-Strońska, M., Gorajska, M., & Czajka-Jakubowska, A. (2019). Psychosocial predictors of Bruxism. *BioMed Research International*, 2019, Article 2069716. <https://doi.org/10.1155/2019/2069716>
- Rek, S., Sheaves, B., & Freeman, D. (2017). Nightmares in the general population: Identifying potential causal factors. *Social Psychiatry and Psychiatric Epidemiology*, 52(9), 1123–1133. <https://doi.org/10.1007/s00127-017-1408-7>
- Rohoza, K., & Obreńska, M. (2020). Dream experiences in alexithymia. *Annales Universitatis Mariae Curie-Skłodowska*, 33(3), 221–233. <https://doi.org/10.17951/j.2020.33.3.221-233>
- Schredl, M., & Erlacher, D. (2004). Lucid dreaming frequency and personality. *Personality and Individual Differences*, 37(7), 1463–1473. <https://doi.org/10.1016/j.paid.2004.02.003>
- Schredl, M., Berres, S., Klingauf, A., Schellhaas, S., & Göritz, A. S. (2014). The Mannheim Dream Questionnaire (MADRE): Retest reliability, age and gender effects. *International Journal of Dream Research*, 7(2), 141–147. <https://doi.org/10.11588/ijodr.2014.2.16675>
- Ścigała, D. K., Zdankiewicz-Ścigała, E., Bedyńska, S., & Kokoszka, A. (2020). Psychometric properties and configural invariance of the Polish—Language version of the 20-Item Toronto Alexithymia Scale in nonclinical and alcohol addict persons. *Frontiers in Psychology*, 11, Article 1241. <https://doi.org/10.3389/fpsyg.2020.01241>
- Sifneos, P. E. (1973). The prevalence of 'alexithymic' characteristics in psychosomatic patients. *Psychotherapy and Psychosomatics*, 22(2), 255–262. <https://doi.org/10.1159/000286529>
- Spanos, N. P., McNulty, S. A., DuBreuil, S. C., Pires, M., & Burgess, M. F. (1995). The frequency and correlates of sleep paralysis in a university sample. *Journal of Research in Personality*, 29(3), 285–305. <https://doi.org/10.1006/jrpe.1995.1017>
- Taylor, G. J. (1994). The alexithymia construct: Conceptualization, validation, and relationship with basic dimensions of personality. *New Trends in Experimental and Clinical Psychiatry*, 10(2), 61–74.
- Thompson, J. R. (2009). *Emotionally dumb: An overview of alexithymia*. Soul Books.
- Yehuda, R., Steiner, A., Kahana, B., Binder-Brynes, K., Southwick, S. M., Zemelman, S., & Giller, E. L. (1997). Alexithymia in Holocaust survivors with and without PTSD. *Journal of Traumatic Stress*, 10(1), 93–100. <https://doi.org/10.1023/a:1024860430725>
- Zdankiewicz-Ścigała, E. (2017). *Aleksytymia i dysocjacja jako podstawowe czynniki zjawisk potraumatycznych* [Alexithymia and dissociation as basic factors in post-traumatic phenomena]. Wydawnictwo Naukowe Scholar.
- Zimmermann, G., Rossier, J., Meyer de Stadelhofen, F., & Gaillard, F. (2005). Alexithymia assessment and relations with dimensions of personality. *European Journal of Psychological Assessment*, 21(1), 23–33. <https://doi.org/10.1027/1015-5759.21.1.23>