RoSE
Research on Steiner Education

Volume 10 Number 1
pp. 118-149

Hosted at www.rosejourn.com

Transforming stress-induced traumatic reaction patterns in persons with Type 1 Diabetes through introspection. An example of patient led research

Bettina Berger[1], Rosa Michaelis[2], Peter F. Matthiessen[3], David Martin[1]

[1] *Chair of Medical Theory, Integrative and Anthroposophic medicine, Health Department, University Witten/Herdecke, Herdecke, Germany*

[2] *Department of Neurology, Gemeinschaftskrankenhaus Herdecke, Germany*
Integrated Curriculum for Anthroposophic Medicine (ICURAM), University Witten/Herdecke

[3] *Center of Integrative Medicine, University Witten/Herdecke, Herdecke, Germany*

ABSTRACT. Background: Type 1 diabetes mellitus (T1DM) is an autoimmune disease whose occurrence is explained in a multifactorial manner. The disease-causing factors are not identified in individual cases. Although research indicates that stress and trauma may be relevant risk factors, they are neither individually diagnosed nor treated. Based on a single case, the relationship between trauma, stress and T1DM diagnosis and management are explored and discussed on the background of various theories.

Objective: Can one, by observing one's own behaviors (introspection), identify patterns that provide clues to disease-causing stress factors? Can these psychological traumas be overcome?

Methodology: A daily practice of reflecting on introspective perceptions of emotional states and blood glucose levels for insulin dose adjustment is applied as an oscillatory approach between mindful perceiving and reflective distancing. Diary entries are evaluated according to analyzed content and condensed into a shape-like pattern. Adapted to procedures for physical illnesses, a change management strategy, Scharmer's theory U[1], is used to overcome traumatization as a process-oriented tool.

Result: A stress pattern was identified. The protagonist hypothesizes that the lack of personal recognition and unresolved early childhood mental stress situations have contributed to a chronification of an overload of allostasis and thus to a traumatic condition, which in this case might have contributed to the development of T1DM. The protagonist further hypothesizes, that the recognition of the subjectively significant stress factors in daily life enabled the overcoming of the traumatization, but, not the T1DM.

Discussion: The protagonist proposes that current relationship patterns can be used to identify relationship pattern of childhood, and perceives the impact of the mental stress situation in early childhood as a relevant contribution to the development of the T1DM.

1. Regarding Scharmer´s theory U see Appendix 1

Conclusion: People with stress-induced autoimmune diseases might – as was the case of this protagonist – find great comfort in being acknowledged and supported in the process of identification of their subjectively significant stressors and engaging in their transformation. In this case this also led to the hypothesis that traumata may be a causative factor in autoimmune diseases such as T1DM.

Keywords: Introspection, pattern recognition, autoimmune disease, type 1 diabetes mellitus, first person perspective, single case, theory U, self-updating, traumatic reaction patterns

1. Background

1.1 Autoimmune disease

Diabetes mellitus is an autoimmune disease among 80-100 other autoimmune diseases. Autoimmune diseases (AID) represent a heterogeneous group of 70-80 different inflammatory diseases affecting approximately 4-10% of the population. The material costs of autoimmune diseases for healthcare are now seen to be in the range of cardiovascular diseases and cancers, in particular due to the often decades-long chronic courses (Shapira et al., 2010).

Autoimmune diseases can be detected on the basis of an autoimmune response that is directed against one's own tissue. The etiology of autoimmune diseases is complex. The focus is on genetic, immunological, endocrine and environmental factors. Autoimmune diseases are often characterized by a progressive course of increasing deterioration. They therefore have a high personal and economic relevance (Ehlert and Kanel, 2011). Therapies are often only symptomatically effective, analgesic, palliative, or substitutive. The quality of life for those persons affected is often considerably limited.

The immune system is differentiated into the innate immune system and the adaptive or acquired immune system. The acquired immune system's organs and cells only develop and permanently change in the course of embryonic development, early childhood and youth. The human immune system is also called the link between body and soul (Zänker, 1996). It is of great importance for the development of one's own (immune) individuality, as it develops in its day-to-day dealing with the environment. Thus one speaks of the biological individuality as a result of the respective development of a specific, unique immune system.

Psychoneuroimmunology (PNI) increasingly discusses how behavioral and attitudinal patterns can promote, sustain, and even contribute to the onset of autoimmune diseases. Psychoneuroimmunology describes the interactions between mental factors and factors of the nervous, hormonal and immune systems (Schubert and Schussler, 2009). With this definition, it becomes clear that the term 'PNI' deals with a construct involving mutual dependencies, dynamic principles of operation, complex relationships and hierarchical organization. All these are the characteristics of complex systems (Schiepek and Tschacher, 1997). Thus, an anatomically and functionally diverse interdependence of mental, nervous, endocrinological and immunological functional systems is assumed. The model used here is the concept of *allostasis*. It refers to the notion that a network of mediators maintains stability through active change (McEwen, 2003). Allostasis therefore means to maintain the integrity of the organism through adaptive changes, especially in systems that do not have a physiological set point, but in which the physiological values must change according to the requirements (e.g., adrenaline release in sports). However, if these adjustment modes are performed permanently, e.g. due to prolonged stress, rather than taking the necessary breaks in between, the system may suffer from chronic allostatic overload, which leads to the collapse of the system and thus to disease development. The allostasis reaction is mediated by hormones of the so-called hypothalamic-pituitary-adrenocortical axis (HPA axis), also called the stress axis. It represents the main part of the hormone system, which provides permanent adjustment modes via feedback loops, and therefore makes a significant contribution to stress compensation in our organism. Chronic overloading can also disrupt the regulating neuro-endocrinological feedback loop. This disruption is blamed for the development of autoimmune diseases (Schubert, 2014). It is interesting to note that even Mason, who has extended the concept of stress

originally founded by Seyle, postulated that HPA activation, as a major response of the organism to stress, is not a stereotyped stress response, but rather a distinctly individualized performance, dependent on an individual emotional response (Mason, 1975). Autoimmune diseases have many biological similarities with post-traumatic stress disorders. Due to these similarities, Autoimmune diseases and post-traumatic stress disorders (PTSD) have been subsumed in the literature under the common label of "stress related diseases" (Schubert, 2015).

1.2 Type 1 diabetes mellitus as a stress disorder

The incidence of Type 1 diabetes mellitus (T1DM) has increased enormously over the past 30 years. T1DM is considered the most significant endocrine disease in childhood with increasing incidence (Rewers and Ludvigsson, 2016).

There are two main types of T1DM,

- the autoimmune Type 1a,

- and the idiopathic Type 1b, in which no autoimmune antibodies are detectable.

In T1DM, chronic immune-mediated disease can be identified as the cause of pancreatic beta cell destruction. According to the German Diabetes Society's S3 guidelines, of the large number of autoantibodies detected in T1DM, five serological markers are specific enough for detecting Type 1a:

- Islet cell antibodies (ICA),

- insulin autoantibodies (IAA),

- autoantibodies to beta cell glutamate decarboxylase (GAD65A),

- autoantibodies to tyrosine phosphatase (IA-2a),

- and autoantibodies to the zinc transporter 8 of the beta cell (ZnT8).

However, the diagnosis is usually reduced to the typical symptoms of T1DM (lean patient, hyperglycaemia), while a distinction between autoimmune and idiopatic T1DM is not yet considered relevant. However, various factors may be implicated in the genesis of T1DM, ranging from psychological stress, infections, diminished microbial diversity, hygiene, birth weight, nutrition, breastfeeding to environmental factors (Nygren et al., 2015). The β-cell stress hypothesis suggests that factors that cause increased insulin requirements, such as rapid growth, obesity, puberty, low physical activity, trauma, mental stress, and glucose overload, may also play a role in the development of T1DM (Nygren et al., 2013).

Stress is conceptualized in a variety of ways in diabetes research, i.e., in terms of the impact of the disease, as a burden on parents and children, on the interactions between stress and blood glucose levels, diabetes-related stress, co-incidence with other stress-related illnesses, and as a disease-causing factor. In the following, the discussion is focused on stress as a disease-causing factor. A milestone in the consideration of stressful life events as a risk factor for the development of T1DM is the ABIS (All Babies in Southeast Sweden) study. This first prospective study concluded that experience of a serious life events in childhood may be a risk factor for manifest type 1 diabetes. In the ABIS study, family psychological stress was measured via questionnaires given to the parents assessing serious life events, parenting stress, parental worries and the parent's social support (Nygren et al., 2015).

The increase in risk due to stress is described as being comparable to other risk factors such as birth weight, nutritional factors and enterovirus infections (Wahlberg et al., 2005; Nygren et al., 2013; Nygren et al., 2015). The ABIS study defines negative chronic stress as a chronic or repeated stress response due to persistent environmental demands that are excessive for the particular individual. Using Lazarus definition of stress, the event needs to be perceived as a stressor in order to be one (Lazarus, 1991). Demands or events that might be stressors for a child are for example biological needs (hunger, cold, pain), health events (infections, injuries), life events (starting school, death of a pet, new sibling, migration), relationship with caregivers

(separation from caregiver, parental unresponsiveness). In this study, both unpredictable and predictable events or circumstances that can be perceived as stressful will be referred to as stressors. Furthermore, it is not necessary that the stressor actually causes a stress-response in each person exposed to it; instead, the stressor should be understood only as a potential stressor (Nygren et al., 2015). This list shows that circumstances which children might perceive as stressful can be completely harmless for others, and depend on individual appraisal and on resources and coping-strategies that a child might, or might not, have.

This would mean that a T1DM could possibly also develop as a somatic (mal-) adaptation in dealing with stress. Consequently, it can be suggested that psychological stress in early childhood may lead to malformations of the immune system and possibly in some persons to the later onset of an autoimmune disease. Although psychological stress has been proven to be a possible relevant risk factor, this dimension has so far received little or no attention in individual diagnostics of patients with the T1DM.

Trauma, whether as shock trauma or developmental trauma, can also trigger stress reactions in the body that sooner or later overwhelm the auto-regulation of the affected person and can lead to chronic illnesses. There are only a few studies of traumatic causes of T1DM. A case report that postulates a clear link between T1DM and a traumatic event concerns a 10-year-old child suffering from diabetes shortly after the fall of a bomb caused him to be stunned. The attending physician diagnosed a post-traumatic stress disorder that led to T1DM in this child (Karrouri, 2014). The scientific literature is ambiguous and does not confirm or deny that stress could facilitate the onset of this disease. However, even in view of these data, the role of chronic stress in post-traumatic diabetes is still considered as only "hypothetical, partial and indirect" (Vialettes and Conte-Devoix, 2013). Only recently, the relationship between stress and the onset of T1DM becomes more accepted. Sharif pointed out, that a wide array of evidence, ranging from epidemiological to animal models, points toward the role of psychological stressors in T1DM pathogenesis. And various mechanisms have been proposed, including the hypothalamic-pituitary-adrenal (HPA) axis, influence of the nervous system on immune cells, and insulin resistance. (Sharif 2018)

In psychoneuroimmunology, it is becoming increasingly clear that the reactions of the immune system can be learned and thus changed by experience. The acquired immune system is described as adaptive, inducible, memory-forming, and genetically and epigenetically variable (Niggeman and Zänker, 2015). Thus, it can be hypothesized that autoimmune diseases, at least with regard to the adaptive immune system, i.e. the function of T-lymphocytes, could represent learned immune reactions that could possibly be 're-learned', at least in part. Understanding the influence of stress in individual biography offers a possibility of self-activation because, in contrast to such influential factors as missing breast milk in childhood or genetic factors, the subject might be able to change stress perception later in life.

1.3 Biography research as individuality research

As a way to understand a personal ability to develop an individuality, which is accessible to scientific research, biographic research is an appropriate method. McEwen argues that the biographical context must be included in humanistic integrative medicine (McEwen and Getz, 2013). Only the (biographical) context enables the concrete assignment of meaning of corresponding events for the concrete individual. The biography is the greatest possible individualization design for a human being, since the lived concrete biography expresses the specific adaptation and adaptation achievement of a concrete human being. Interestingly enough, however, biography research is hardly established in medicine and represents only a very small field in sociology (Jüttemann and Thomae, 1999; McEwen and Getz, 2013).

While the biography itself can be regarded as an act of unconscious self-actualization, biography research is a method that uses the biographical interview to create a self-generating process of awareness among interviewees that supports them through their own analysis work. Using the example of epilepsy, Andreas Hanses has impressively demonstrated how the disease can be an expression of individual design achievement (Jüttemann and Thomae, 1999). He points to a creative act of 'disease design' or to the best available biographical solution with respect to specific circumstances at a moment in time. This could be made clear, especially with epileptics, in that the epileptic seizures in each case seemed to take on a very concrete

independent function of crisis management, which may only be recognized by the person concerned on the basis of the analysis of their own biography – and then possibly overcome (Tang et al., 2014; Michaelis et al., 2017).

1.4 Insight gained through introspection

In psychology, introspection is defined as the study or observation of one's own thoughts and feelings. Introspection as a method of cognition is currently becoming popular again (Feest, 2014). Originally it belonged to the classical canon of psychological research methods. Currently, different methods are developed to discuss introspection as a valid tool of cognition. Burkart et al presented qualitative methods, based on heuristic concepts (Burkart et al., 2010). Other authors develop specific methods to gain pristine data of inner experiences (Lapping-Carr and Heavey, 2017) using repeated interviews of the same person and topic to gain a higher validity of data. This case bares witness to a personal, introspective developmental approach as an expression of freedom.

Disease as an individual coping, learning and developmental process is an understanding of disease that many people share and a basis for looking for complementary and integrative medical procedures (Franzel et al., 2013). At times, it is possible to establish the extension of individual freedom of action as an ethical maxim in health care, for example in the field of the development, application and implementation of decision-making aids. An invitation to the patient to include his or her individual preferences in the process of deciding between different options for action and weighting the available options for action with regard to one's own preferences, represents an attempt to operationalize the subjective dimension in health care and to render perceptible the respective degrees of freedom available in relation to very specific health-related decisions (O'Connor et al., 2003; Lenz et al., 2012; Lenzen et al., 2015). For chronic diseases, especially for autoimmune diseases, this is a much more complex process: The Type 1 diabetic person has to come to terms with the fact that the beta cells are destroyed and he or she has to rely on insulin substitution for life. The daily injections and sugar measurements also include the permanent reflection and calculation of the effect of his or her action on blood sugar development as well as the frequent capitulation to the limited predictability of the complexity of metabolic processes (Frandes et al., 2017).

But where does 'freedom' lie for people with T1DM? The only choice (as an act of free decision) is between the therapeutic differences of insulin pump therapy and multiple daily insulin injection with pens. What other 'freedom options' are available to a person with an incurable disease?

A T1DM person most closely resembles the monkey in Franz Kafka's 'Report for an Academy' (Kafka, 1997). The protagonist of this work did not see freedom in death by jumping in the sea, nor by vegetating further in his cage, but in choosing the highest possible form of freedom available to him, which he saw as learning the rules of man's game. Thus, the protagonist of this work also decided to set the highest individual potential for intellectual freedom as a benchmark. This demands a superordinate form of freedom, which is sought in the mental attitude of conscious perception. This form of freedom has many teachers. For Peter Heusser, freedom is that form of human will that demonstrates the fully conscious effect of the self-conscious human spirit who experiences itself as reality. The thinking ego owes to its brain not its essence and its activity, but rather its consciousness and, indirectly through this, its freedom (Heusser, 2011) (p. 167). Concluding from his reflections of Rudolf Steiner's writings and current philosophy, Heusser formulates the human spirit as the instance in man which brings the underlying spirit of material, living and animated nature into manifestation in the form of lawfulness and which thus can also (re)cognize itself (Heusser, 2011)(p.170).

Self-knowledge as the tool for achieving freedom is also known in other cultures: On the basis of Buddhism, Varela has developed his middle path of knowledge and estimates Karma as follows: "The formation of different patterns and inclinations in our life history is usually referred to by Buddhists as karma. It is this accumulation that gives the ego sense, which is so obvious in everyday, unreflective life, its continuity. Precise, disciplined mindfulness can break the chain of automatic conditioning. The path to this is the open, mindful analysis of experiences, in which the mind of the analyzer gradually changes. Mindfulness

allows the meditator to break through automatic patterns of conditional behavior" (Varela et al., 1995). If Buddhism is about the dissolution of the ego, then the autoimmune sufferer may first have to understand what contribution he or she personally makes to the development, maintenance or aggravation of his or her illness. In any case, with his stress model, Lazarus has also made it clear that the individual, as an active subject, experiences those psychosocial processes as effective that gain significance in the individual context of a previous life history, a current mental state, and intended life goals (Lazarus, 1991). How the process of translation of environmental stimuli goes beyond the psychological to the physical is still unknown, because according to Roth (Roth, 1992) environmental stimuli should lose their specificity in their respective perceptions. But then, in a further step, the subjective environment is reconstructed by assigning meaning in the form of thoughts and feelings (Schubert, 2015). This subjective attribution of meaning may then possibly affect as disruption of dynamic regulatory processes. If these disorders are limited stimuli, then they have a beneficial effect on the organism, they train the adaptation and regulation processes. If they overwhelm the organism, then parts of the auto-regulatory adaptation processes can collapse. Thus, mono-causal relationships are not suspected and a complex process of understanding of personal biography is important and needs transformation strategies that are focused on significant dimensions of the individual.

1.5 Theory U as a transforming process model

The complexity of a biographic situation might be comparable with the complexity of management processes. The Theory U was developed for restructuring complex management processes by the German MIT researcher and consultant Otto Scharmer (Scharmer, 2009). The Theory U process is regarded as a tool for the transformation of management and social processes in complex situations and different institutions. The concern is to become aware of one's own blind spots through the inclusion of different levels of perception, as well as to gain in-depth access to the actual concerns of an organization or social grouping. According to Scharmer, new ideas and a vision of the future can only arise if one creates the necessary inner space for consciousness for new insights. The process described by him goes through two major phases, which can be subdivided into different steps, starting with the phase of ever widening perception, followed by the phase of change.

Phase of ever-widening perception:

1. The perception of the totality of habitual judgments,
2. Objectively discriminating and objectivizing (scientific) listening and observing,
3. Empathic listening and the entering into a dialogical happening

Phase of change:

4. The opening of a new interior, and thus the possibility of contact with the sources of the self
5. Developing a vision from the new connection
6. Testing the new in prototype
7. Applying the new practically and embodying it institutionally to bring it into a form through, for example, infrastructures and everyday practices (Scharmer, 2009).

In this sense, the question arises, to what extent the careful observation of one's own behavioral patterns can lead to insights that enable the protagonist to deal with them (coping) or even to overcome them? In the case of a disease that originated in early childhood, one may critically discuss whether or not it is possible at all to recognize and dissolve similar, repetitive forms of behavioral patterns that, like fractals, differ in size and timing, and to identify common components through introspection. A further question is whether or not it is possible to transform these patterns.

Pattern recognition is shown by Kiene to be an adequate method of indicating causality in a single

case study design (Kiene, 2000). Matthiessen, accepting a cognition-based approach to medicine, will however, in view of the category of „phenomenal causality", assert that this is only possible when there is isomorphism between cause and effect. Due to the autonomous nature of the human organism, physical and social influences serve as possibilities, but not as causes. Accordingly, there is no cause-and-effect relationship between external influences in the sense of a 'causa aequat effectum', but a stimulus-response relationship, whereby there is a high degree of anisomorphism between stimulus and reaction. Disease symptoms turn out to be self-lawful, active achievements of individuals, who succeed or fail in their goal for health maintenance or self-healing (Matthiessen, 2003). Thus, initially, it is not about a *proof of causality* but about the generation of hypotheses based on introspective perception and thus the possibility of identifying the individual's current *subjective disease construct*. Methods of gaining information from the unconscious level of embodiment during childhood should be included. For this study they are: 1.) a biographic pattern recognition process referentially combining cognitive and emotional perception to identify possible relevant stressors possibly influencing the development of this concrete case of T1DM. 2.) a process for transforming stressors embedded in Scharmer's Theory U process.

2. Method:

2.1 Adaptation of Theory U to the needs of the chronically ill

The Theory U steps have been used for the developmental process by the protagonist (Scharmer, 2009). The transformation of the individual coping strategy has a physical, a psychological, a biographic ego-related, as well as a social dimension. In the transformation of diseases, therefore, a tool has to be used which gives validity to these levels. The Theory U is therefore applied in a slightly adapted form to the transformation process of the protagonist (see BOX 1).

Box 1.: A Path of Transformation of stress-induced Type 1 Diabetes - following Scharmer`s Theory U

1. Pattern Recognition - Observation
Mindful perception of repeated behavior patterns
Identification of a superordinate (auto aggressive) pattern)

2. Immersion in the emotional field
Perception of feelings and life experiences written into the body

3. Biographic Validation - and change of perspective
Identification of biographical references that support the intrinsic perspective
Bring into contact with other perspectives

4. Definition of a central crisis
Name the individual cause of the disease and accept it as a solution
Connect with the inner source - the actual issue and inner calling

5. Appreciation and release
Appreciating the biographical situation
Letting go through forgiveness

6. Identifying resources and (developmental) needs (letting come)
Identification of resources (cognitive, emotional, vital, social and spiritual)
Identification of (development) needs

7. Establish a new behavior (embodying)
Implementation of the changes behavior in the daily processes
Repeat the process for other relevant aspect if necessary

As a significant difference to Scharmer's process, in Step 2, immersion in the perceived reality by body-therapeutic processes is chosen. This concerns the perception of the feelings and life experiences inscribed in the body. While Scharmer describes releasing as a prerequisite for Step 4 (Presencing), in the adapted variant the resonance space is a prerequisite for self-updating and only then can the release be carried out (Scharmer, 2009). Whereas in Scharmer's model, Step 5 already includes the development of a new vision, in this case it is regarded as more difficult because unconsciousness, as well as embedded spiritual dimensions, have to be addressed in a complex transformational process. Step 5 should be related to the forgiveness process, Step 6 identifies existing resources and needs, and in Step 7 the formulation of the vision on how to embody the experiences can be expressed. Different methods have been used to realize single steps of development. The following section describes the methods chosen for each step.

2.1.1. Pattern Recognition (cognitive level):

Based on diary entries from between 1990 until 2016, protagonist-relevant conflicts, in terms of their common pattern, were chosen for analysis, according to Mayring (Mayring, 2000). Inclusion criteria for selection of conflicts were the quality of the conflict, which was perceived as unsolved and still remaining as a burden in the consciousness of the protagonist. The conflicts are identified as phenomena based on diary entries. The conflicts are coded, common dimensions identified and condensed into a pattern.

People with T1DM need to keep their blood glucose within the desired range between 80 and 160-180 mg/dl, which requires daily body awareness training and concentration. For this, they have the ability to observe body markers and to interpret body signs (weakness, sweating, cold feelings, tiredness) in relation to their blood sugar levels so as not to lose consciousness or the ability to act. People with T1DM are encouraged to keep a journal of recorded blood glucose levels, injected insulin units, ingested carbohydrates, exercise, and other events. The following process is run several times a day:

- Blood sugar estimate based on body perception
- Checking one's own perception by measuring sugar values
- Critical evaluation of the last dose of insulin
- Current decision on the necessary insulin dose and, if necessary, dose adjustment.

Thus, in the constant blood sugar examination, there is a constant oscillation (in the sense of Adams) (Adams, 2012) between the observed (readings) and the observer, in this case through the cognitive review, evaluation and readjustment of the insulin dose. This approach is applied to the introspection and identification of personally relevant stressors, comparable with common therapeutic approaches of psychotherapy and health enhancement:

- Formulation of a perception through introspection
- Critical review
- Behavior observation and modification
- New review

2.1.2. Immersion in the emotional field (emotional level):

This is the foundation for the awareness of body states, as well as intuitive and automatic reactions. The earliest experiences take place predominantly on the unconscious level and become patterns of emotions that can become so central to our identity that they are hardly accessible consciously. Emotional experiences are thus part of the implicit memory system (Roth, 2001).

How can one gain access to this unconscious part of emotional memory? Body processes become perceptible via introception, defined as the ability to perceive body sensations and the unconscious memories encoded in them.

2.1.3. Multi-perspective biographical validation dialogizing (social level)

For biographic validation and dialogizing, in 2015, a therapist took a biographic interview. This interview provides an opportunity to present the results of a multi-year introspective work. The detailed interview contains 30 pages. It was transcribed verbatim and discussed by six different experts, both in an interpretation group and in individual discussions. The participants in the panel of experts included diabetologists, psychotherapists, anthroposophic physicians, a psychologist and diabetes counselor, a psychotherapist and an affected person (Table 1 Experts).

Table 1 Experts

Code	Gender	Profession
E_01	Male	Physician, specialist for diabetology, anthroposophic medicine
E_02	Male	Physician, anthroposophic medicine Specialist physician for children's and youth psychiatry
E_03	Female	Diabetes counsellor, psychologist
E_04	Female	Diabetic, Physician, Specialist for psychiatry
E_05	Male	Physician, specialist for diabetology
E_06	Female	Physician, specialist for neurology and psychiatry
E_07	Male	Physician, general practitioner, anthroposophic medicine

The comments in this expert group were used to go into a dialogue with other perspectives. Main interpretive categories were identified and circulated repeatedly in a hermeneutic process to create a social field of resonance by the broader perception of professionals, as well as to get a basic resonance for further development. The presented introspective thoughts could hardly have been communicated elsewhere.

2.1.4. Definition of a central crisis

For this step, it was important for the protagonist to get in contact with the psychic situation from the time of disease development. This quality can't be forced by a certain method. It should be an emotional process, but not a cognitive one. The individual cause of the disease should be named and accepted as the best available solution at this time in this concrete situation. The aim should be a connection with one's inner source. In this case, pranayama breathing exercises have been chosen as means for getting in contact with this dimension.

2.1.5. Appreciation and letting go

Different tools have been developed for the task of appreciating one's own biographical situation and letting go of disappointment about the situation through forgiveness. Stauss defines the following steps for forgiveness: 1. Take on the suffered (mental) wound as a task and allow the wound to exist, 2. Access the legitimate feelings of anger and grief about one's biographical situation, and by this increases one's ego-strength, 3. Change the perspective in developing inner sympathy for the offender, 4. Build up an inner feeling of mercifulness for the offender, 5. Perform a forgiveness ritual in public, 6. Maintain the attitude of forgiveness for a long time period, 7. Reconciliation (Stauss, 2010).

2.1.6. Identifying resources and (developmental) needs

Existing resources and developing needs can be identified and realized. Different methods are available.

2.1.7. Establishing a new behavior

Until this point in time, releasing has been limited to mental states. But other trauma concepts exist which even address biological dimensions. Using "somatic experiences" as a trauma healing process, as developed by Peter A. Levine, the client is helped to move to a state where he or she is disregulated (i.e. is aroused or frozen, demonstrated by physical symptoms such as pain or numbness) and then iteratively helped to return to a state of regulation (Levine et al., 2009). The goal is to allow the client to resolve the physical and mental difficulties caused by the trauma, and thereby to be able to respond appropriately to everyday situations. The intention of this process is to reinforce the client's inherent capacity to self-regulate. The process is used for both shock trauma and developmental trauma. The program has not, to our knowledge, been tested for people with autoimmune diseases. Only single case studies exist concerning patients who suffered from shock traumata (Payne et al., 2015). However, for this following case report, we are talking only about establishing a new behavior on a mental and psychological level. To what degree this different mental and emotional approach might be able to influence the physical level of endocrine disregulation has to be investigated by appropriate study designs. The following case reports the results of the developmental process of the protagonist of the article using the methods described under the Method-Section (2) in this article.

2.2 Case report

2.2.1 Medical history

Physical Findings: The case study is conducted on a 50-year-old woman who works as a cultural and health scientist and has been living with T1DM for 40 years without any serious complications. Her HBA1c is routinely measured every three months and she maintains this blood sugar long-term value at between 6.9% and 7.5%, and thus remains within the medically recommended standard. She requires about 16-20 units of levemir as basal insulin and between 20 and 30 units of short-acting insulin (actrapid) per day. She suffered a four-day hypoglycemia-related hospital emergency once within the last 40 years. The ophthalmological findings show varying degrees of non-proliferative retinopathy (levels 0 to 1), which also regress; otherwise

there are no further long-term complications. The blood pressure values are in the normal range, the BMI is slightly increased with 25.6 kg/m2.

2.2.2. Social findings:

The protagonist was born as the eldest daughter of three girls in a parish household in a small village on the outskirts of East Berlin (East Germany). A nurse assisted the mother and father during their first weeks. Breastfeeding did not succeed. The father worked at his job and the mother stayed at home to care for the children. The Berlin Wall finished the mother's dream of going abroad. Cognitive and musical elements were emphasized at home; less attention was paid to sports. When the daughter was 9 years old, the family relocated due to the father taking on a managerial position, and the mother a part-time (50%) job. At the age of 10, the protagonist got a sore throat that was treated with penicillin, followed by an allergic reaction. Due to the allergic reaction, the antibiotic treatment was stopped. In the same year, the T1DM diagnosis was made and the child was put on porcine insulin with two injections per day. She had a lively youth with music, movement and youth work. She finished high school graduation with the best grades one could have (German Abitur with grade 1.0). Memories of the initial symptoms of the onset of an eating disorder date from age of 17 years. Her application to university was rejected for political reasons by the German Democratic Republic (GDR) government, only theology was allowed, and this was discontinued due to an increasing somatization disorder after the 4th semester. The protagonist applied for a training position as a physiotherapist but was rejected on the grounds of an assumed over-qualification (having an A level education; Abitur). A completed vocational training as a medical masseuse remained unsatisfactory. In 1989, for the first time, she opted for inpatient psychotherapy, which was discontinued by the therapists because of the societal chaos during the time of German reunification. A search for appropriate therapy continued to be unsuccessful; the diabetological psychologists who worked with people with T1DM practiced behavioral therapy, leaving the emotional situation unprocessed. The lack of resolution of the emotional blockades made it difficult to find a suitable place to study. Admissions for study places could not be implemented because the protagonist could not develop a financing strategy. After temporary activities (language study, work in the socio-pedagogical field) a pragmatic decision was made for the cultural sciences, which resulted in a scientific career in health care and subsequently enabled an almost uninterrupted professional career including doctorate. The professional developments are repeatedly characterized by commitment and success on the one hand, but by a lack of feeling of arrival and by a permanent feeling of futile struggle, on the other.

2.2.3. Current symptoms and complains

After a break in her professional career in 2014, she repeatedly developed major depressive episodes. Increasing tiredness, injection phobias and fatigue hardly improved, even after a 5-week psychotherapy stay. The following diagnoses seem applicable: Moderate depression, according to the ODC scales: a moderately integrated personality (Arbeitskreis OPD, 2006) and at the attachment level of an ambivalently bound personality. The protagonist felt compelled to develop a new form of perception of her disease and to cope with a biographic crisis and continued to work on her own.

3. Results

Here the results of going through the transforming process of the adapted Theory U are presented:

3.1 Pattern Recognition

Is it possible to recognize similar, repetitive forms of behavioral patterns that, like fractals, differ in size and timing but have common components?

Data from the journal records were grouped and analyzed using content analysis.

The following categories of auto-aggressive behaviors could be identified:

3.1.1. Outbursts of anger

3.1.2. Emotional numbing in response to emotionally overwhelming situations

3.1.3. Withdrawal and inappropriate negotiation of own needs

3.1.4. Taking on prohibitions from the environment

Outbursts of anger

The protagonist observed a series of uncontrolled outbursts of rage. The conflicts have the following common aspects:

- the concerns are existentially meaningful to the protagonist
- there were repeated attempts at different solutions initiated by the protagonist
- these solution attempts were unsuccessful
- there was a lack of inner distance and inappropriate affect regulation, which becomes rage
- the protagonist was not able to get mediation or dissolution through the social environment
- the observed conflicts remain unresolved in the long-term, possibly with far-reaching negative consequences for the protagonist. (Table 2 – Examples 1-3)

Table 2 Pattern recognition (Examples 1-3)

Category	**Nr. (Year)**	**Background and Meaning**	**Triggering moment and action of the protagonist**	**Reaction of the conflict partner and the social environment**	**Auto-aggressive reaction**
Outbursts of anger cause discontinuation of opponent's communication	1. (2014)	*Background:* Long lasting, voluntary engagement in society in the ecological movement sector *Meaning* Need for social belonging and ecological engagement	*Triggering moment:* Continued active cooperation was not desired: *Action*: Outburst of anger by protagonist	*Reaction:* Head of management breaks off communication and deprives protagonist of membership rights *Environment::* No initiative for clarification taken	Management breaks off relationship and protagonist loses social arrangement and sense of belonging to society

Category	Nr. (Year)	Background and Meaning	Triggering moment and action of the protagonist	Reaction of the conflict partner and the social environment	Auto-aggressive reaction
Outbursts of anger cause discontinuation of opponent's communication	2. (2013)	*Background:* Elaborate preparation of a study *Meaning:* Strong engagement; study design correlates with own research ideals	*Triggering moment:* Senior physician does not support the study and does not react to repeated offers to communicate *Action:* Protagonist reacts angrily	*Conflict partner:* Senior physician refuses continued collaboration *Environment:* Keeps apart the two conflicting parties instead of solving the conflict	Discontinuation of the relationship initiated by opponent and nonrealization of the study
	3. (2009)	*Background*: Relocation with family in order to set up new degree program *Meaning*: Protagonist views the offered post as a life-task; hurriedly helps set up degree program under controversial circumstances	*Triggering moment:* After working alone, and over a long period, on the new degree program, the protagonist tries to point out her own limitations to the head of the department, who repeatedly postpones her appointments *Action*: Protagonist complains vocally and assertively	*Conflict partner:* Head refuses any kind of communication; assignment of assured permanent post to a younger, male applicant *Environment:* Despite the protagonist having helped find posts for a number of people, they behave in a dismissive and neutral manner and offer her no support	Department head breaks off relationship and protagonist loses job

Triggers for this pattern are situations that the protagonist perceives as emotionally stressful and overwhelming. The protagonist perceives these situations as existentially menacing. She has the feeling that an existential threatening situation is taking place in the present moment. In her desperate situation, she starts crying. The dynamics of the outbursts of rage suggests that these could be intrusive flashbacks in the psychological sense. In this case, emotionally difficult situations act as triggers or key stimuli for updating the traumatizing primary situations and in which the protagonist loses control. The protagonist experiences existence-threatening feelings and is not able to recognize that these feelings aren't related to the actual situation.

3.2.2. Emotional numbing due to emotionally overwhelming situations

Another form of repeated reaction is an emotional numbing as a reaction to emotionally overburdening situations. Allegations could not be met constructively or critically; the situation was abandoned, so that the protagonist could not clarify her concerns, in her interest, in relation to important professional or private affairs. (Table 2, Examples 4;5)

Category	Nr. (Year)	Background and Meaning	Triggering moment and action of the protagonist	Reaction of the conflict partner and the social environment	Auto-aggressive reaction
Emotional numbing as a reaction to emotionally overburdening situations	4. (2010)	*Background:* Drafting of a scientific publication *Meaning*: High personal engagement (long distance to the working place despite toddler); strong identification with content and method	*Triggering moment:* Incomprehensible accusation of scientific misdemeanor by co-author *Action:* Repeated revision of the article	*Action:* Results were finally published without protagonist *Environment:* Absolutely no support or mediation	Long lasting blockage regarding publication; establishment of position in this specific scientific field was not realized
	5. (2008)	*Background:* Long lasting engagement in Asian martial arts *Meaning*: Ideal view of the world; absolute will to train	*Triggering moment*: Protagonist asked training partner for consideration regarding an injury, leading to outburst of anger and official, public humiliation by trainer *Action:* Withdrawal of membership	*Action*: Protagonist withdraws emotionally and socially *Environment*: Silent observation	Emotional withdrawal and no reuptake of training

3.2.3. Withdrawal and inappropriate negotiation of own needs

A third auto-aggressive behavior is the withdrawal and non-rigorous negotiation of demands important to the protagonist. This withdrawal of own concerns feeds on the fear of being brought back into an emotionally threatening and therefore existentially unsettling situation (Table 2, Example 6). In part, this restraint in relation to one's own needs may also come from a limited perception and possibility of articulation of those needs. Thus, for example, after German reunification, no financing could be organized for the realization of a study-place suited to the achievements and diverse interests of the protagonist. (Table 2, Example 7).

Category	Nr. (Year)	Background and Meaning	Triggering moment and action of the protagonist	Reaction of the conflict partner and the social environment	Auto-aggressive reaction
Withdrawal and inappropriate negotiation of own needs	6. (1998)	*Background:* Protagonist separates from Algerian partner due to repeated violence. His psychological blackmail attempts prevent several months of concentrated study. *Importance:* Foundation does not extend scholarship. Loss of financial basis	*Triggering moment:* Question of student financing is not discussed with the parents, no financial support *Action:* Protagonist finances studies and parallel marriage alone through work as a masseuse	*Reaction:* None *Role of the environment:* Indifference	Inability to subsequently accept more suitable offers for study places because the question of affordability remained unresolved
	7. (1990	*Background:* In the GDR no English lessons in the school, therefore self-instruction in VHS courses and with language-case (gift of the grandmother) *Importance:* Strong own engagement	*Triggering moment:* Mother lends the language-case to her Mozambican protégé and does not hold it back even upon repeated requests *Action:* The protagonist was raped by Mozambican when she went to his men's dorm to ask for the language-case	*Reaction:* Mother did not respond to the concern (does not recover language case) *Role of the environment:* None, as there was no request for help	Experiencing the rape; even today, limited knowledge of English leads to blockages

3.2.4. Taking on prohibitions from the environment

Prohibitions were stubbornly followed rather than looking for creative solutions. The protagonist reports numerous prohibitions she encountered in her life. E.g.:

- due to her diabetes (prohibition of participation in physical education, travel ban by the organizer, ban on self-design of diet),
- due to the parents (piano playing following diabetes diagnosis, participation in sportive activities),
- due to the strict political system (GDR) (prohibition of participation in English lessons, friendships were [for political reasons] monitored or suppressed, study bans for all programs except theology, despite passing the aptitude test, the ban on the physiotherapy course due to over-qualification).

The adoption of developmentally restrictive prohibitions may be regarded as an auto-aggressive attitude in these cases. The protagonist was usually intimidated by these prohibitions rather than finding creative solutions to circumvent them.

Interpretation: A common pattern can be seen across all dimensions of the described situations: These are (1) situations of high personal significance where (2) conflicts lead to contact interruptions or paralysis, (3) are not recognized in their existential relevance by the protagonist herself or the social environment (4) and are not resolved and thus lead to a similar bodily solidification which acts as a permanent reminder of the primary trauma situation. In all these situations there is a complete loss of communication – either due to a tantrum or due to lack of initiative. Points 1-3 can also be considered as simple indications of insufficient affect regulation. Moreover, point 4 suggests a sustained pathological regulatory pattern. To the protagonist these conflicts appear unresolvable, leading to the protagonist's fixed regulatory strategies.

3.3 Immersing oneself in the intrinsic field

To what extent is this behavior embedded as subconscious memories in one's own body?

Intensive bodywork during a therapeutic sessions was used to understand the intrinsic and unconscious situations the protagonist may have been caught in from early childhood. During a therapeutic session in 2014, the therapist asked to formulate the main life motto, which can be formulated as a leading principle during childhood, condensed in one sentence. The group participants are required to pay attention to which emotions this sentence triggers and to take a corresponding body posture. This posture should show the clients which emotion schema they might have developed during their childhood. The emotion schema describes a psychic structure, which influences the way we interact with other people. As the main motto of life embedded as an excitation pattern in her body, as shown by the body posture, the protagonist felt the sentence, „Du überforderst mich". ("You overburden me") This sentence was associated by the protagonist with a sense of the emotional unreachability of the person in question. The posture was uncomfortably twisted to one side and curved, the face averted, as if it had to protect itself; communication was no longer possible. The attitude was rigid and immobile. This posture led the protagonist to perceive a completely frozen situation characterized by emotional inflexibility and, at the same time, a fear of separation.

Interpretation: The protagonist regards it as physical paralysis, a break in contact that is perceptible as soon as someone signalizes being stressed, overwhelmed or overburdened by her. This emotional learning is, in principle, implicit. The body presents the emotional memory experience. The memory patterns are stored as excitation patterns. A similar situation thus triggers a deeply anchored pattern of excitation. Grawe assumes that „all peculiarities of psychological happenings are based on specific neuronal excitation patterns" (Grawe, 2004). The interviewee commented on the degree of excitation of the protagonist as a permanent state of tension. Since the emotional memory pattern evolves in early childhood, it can be assumed that this body posture can serve as a hint to possible deeply embedded memory structures from early childhood. It represents the sub-symbolic level in the field of multiple coding (Bucci, 2002) Since earliest experiences predominantly take place on the sub-symbolic level and become patterns of emotion, perception at the body level serves as an indication of early childhood development.

3.3 Multi-perspective validation

The main results from the discussions within the expert groups are presented. The discussion created a frame of resonance for the protagonist, although the perceptions of the participants changed during this interpretational process. Thus an opportunity for self-actualization was offered to the protagonist. Related quotations from the interview with the protagonist, as well as the expert's positions, are given in Table 3.

Table 3: Change of perspective

	Code	Citations from the biographic interview	Comments of experts
1	Subjective Model of disease	"And the current type of treatment is, in my opinion, a freeze of the original impulse (...). The treatment of people with T1DM freezes the person psychologically at the level of his stress reaction and is limited to the insulin substitution. This reduces the individuals concerned to the level of psychological development prevalent at the time of diagnosis of diabetes, as long as a possible psycho-neuro-immunological background of the disease is not understood and thus the learned autoaggressive behavior is recognized and new behaviors are developed. (...) The most comparable or understandable are the eating disorders, for example anorexia, yes? Anorexia is a denial of a teenage girl who deliberately says, "I'm not eating anymore," who tries to find her way between adaptation and denial. The same is true in my view for diabetes, but on a much more unconscious level. At a level of the nervous system that says I deny the disclosure of information that the system needs to sustain itself. And because it's so unconsciously unconscious, it's so hard to access and so incredibly hard to understand." (LBI_BB_2013/17-26)	"I would only speak of a freeze of the original stimulus pulses by the therapy, if the triggering moment, the disstress persists or is not recorded in a parallel therapeutic way (which in many cases actually does not happen)". (E_01) "The question for me is: is this a diabetes pattern or rather an autoimmune pattern that leads to diabetes in some and in others, for example, to MS." My impression is that there is nothing specific for diabetes, and the disease adapts to it´s Personality type or something that he / she should learn specifically."(E_04) "In terms of disease identity, I also get the impression that many people change their identities after such a happening that receives such a diagnosis. The ICD 10 includes persistent personality change under extreme stress." (...) That would be something you could explore. Perhaps also, what diseases arise in humans that are not securely attached."(E_03) "I can also understand and find the eating disorder model interesting, and I think sometimes other young women also seem to give mothers a chance to 'somatize'." (E_03) "It could be said that the disease is used in the sense of expressing a protest" (E_04)

	Code	Citations from the biographic interview	Comments of experts
2	Pattern recognitions	And I've discovered patterns . And the pattern is that I repeatedly construct situations in which there is an absolutely radical communication break, on both sides. So, not necessarily from me that I consciously pull down the blinds, but possibly from the others, that they completely pull down the blinds, others! When I feel emotionally not perceived, it happens that I completely shut down the blinds, because then I feel existentially threatened. Much more threatened than someone else. (...) I know of myself that I scream, that I get angry that I will get mad when I am emotionally not noticed. Three years ago, it happened to me with a doctor. I kept inviting him to meetings for three-quarters of a year, and he always said he did not find the room, and he did not have time, and brought several arguments not to come, but without his support I could not do my work and I felt completely grounded. I felt not perceived in my endeavor, in my concern to realise a study and became angry where I would say related to the content, I was right, but the intensity of the emotional response was not appropriate. (…) So, I was emotionally more concerned than pragmatic for this event. I could not separate that. (BI_BB_2013/729-753)	"The individual hypothesis would then be again: If this led to the outbreak of the disease, then this will still be something, a motive that exacerbates your condition. Now not as a cause, but as a trigger of complaints. And you can do this, I think, if you think biographically, you can check it. So, because if you solve that for you, it makes a difference, now, currently. "(E_07) "I: Well, let's say you did not find a pragmatic form of communication. P: Yes. I agree I:" ... but you have just chosen a form, so, very indirectly chosen because it was the only thing that was available to you in the situation (laughs), which is then actually your legitimate concerns sabotaged?" (E_06) "I regularly experience Type1 diabetics with severe auto-aggressive disorders. The bad diabetic metabolic state is only one aspect, often it is a complex personality problem (lack of trust in people, no partner, professional failure). In other words, the actual clinical picture of self-injury (in my eyes, the actual disease process), which is prior to the physical manifestation of the inflammation of the pancreas, must finally be seen and comprehensively perceived. I want to emphasize that I consider both mental and physical aspects to be equally important." (E_05)
3	Immerse into the intrinsic field	The question (of the therapist) was: With what sentences did you grow up? How did you feel about it? What did you do on the physical level? The sentence I formulated in my head was: "My mother feels overwhelmed by me". The body posture I built following the feelings of this sentence became something so rigid, so motionless, completely in defense, completely in the defense of any communication as a reaction to an emotional overtaxing challenge. (BI_BB_2013/756-758). I realized that the emotional unattainability of my mother, her exertion, was an existential threat to me. So, my interpretation was: My mother is emotionally overburdened, and that (...) has shocked me. I've always thought, well, if my mother is overloaded, then that's a pity, but it can't be so dramatic. But through this lineup and the evaluation with the therapist, it became clear that it was existentially threatening for me, this emotional unattainability. (BI_BB_2013/665-669)	"Because your basic needs were not met. And this is then, of course, something that is also inscribed into your cells, and that can then be triggered in such situations today. (...) So, also subtle situations are really very important to look at, because I think of you at least ... you talk to me, but this basic tension that you had, e.g. before you went into the conversation, where you articulate your needs, I noticed it at the time (laughs), so that was already very much there. (...) the very worry that you will not be perceived with your needs, and that is also a stress." (E_06)

	Code	Citations from the biographic interview	Comments of experts
4	Biographic validation	"My godparent was, at the time when I was born, infant nurse in the village where I was born. (…) This nurse told me that on the day of my birth she was called by my father. He said, the child always screamed, and they did not know what to do. She came over, the whole family sat down in the living room, and I was lying in the bedroom in my basket and screaming. And she thought that this child did not have anything to eat, and my parents set off and brought their infant food because my mother could not breastfeed me and never did so. (…) And then (…) my father repeatedly called her and asked for help when I screamed, and the first eight weeks she bathed me because my father was not able to do it and she had to teach him. So, in her perception, my mother was not present, so the suspicion comes up that she somehow had postnatal depression or something. (BI_BB_2013/340-347)	"For me it is really a story already beginning in the mother's body, with the transmission of the feelings of the mother to the unborn child, followed by the non-restraint and rejection and loneliness with little compensatory possibilities plus no breast-feeding plus bad food." (E_04)
5		P: And for that we moved, my parents, from a village to the city, and that was partly tragic, P: I was ten years old. So, we've moved, I came to the new school in town. I was teased because I was wearing a bread bag, (an extra leather case, for the breakfast) (…) P: An old fishing village, with very closed circles, manageable relationships. The children with whom I was in the kindergarten were also the children in my primary school class, first to third. And then the move to M_Stadt , whichwas an industrial city, 300,000 inhabitants. I: And reason for the move was? P: My father's career. He was a village pastor in S-Dorf and then had a higher rank in the church!" (…) I: Did you feel like you could say goodbye? Leaving the village? P: I cannot remember saying goodbye very consciously. (…) P: No. I do not remember a big emotional farewell process, I just remember that there was a farewell party in S-Village, but I was not emotionally involved, and that the new beginning in this city was terribly difficult. And most of all, I remember that my grandmother always said that the cause of the illness was the move. I can very well remember that. (…) (BI_BB_2013/75-127)	Very typical, that in case of threshold crossing, diseases comes to the eruption ... (E_04). In addition, the move is seen as a "Critical Life Event". It goes along with the loss of control and the loss of bonds to peers. Emotionally, the affected person already seems to be muted, can be more biographical than emotional tracing. I would normally find that one is in grief, anger, disappointment, helplessness, and so on. Even if you talk about it as a grief. I feel more resignation, helplessness and impotence instead of anger, which I would expect." (E_03)

	Code	Citations from the biographic interview	Comments of experts
6	Defining a central crisis	"I am 39 years old. We are sitting at the table, my mother is sitting in her place, my little sister is sitting in my father's place. My little sister has her youngest daughter in her arms and is feeding her right now. ... Well, my mother refers to my little sister and present her as a model to me: 'look, you will soon be sitting there. Yes? Look at your little sister, how she does that, so nice with the child!' And then I say: 'Oh, mother, I wish it that way, but at the moment I have other worries. At the moment I just wish to survive this pregnancy well. At the moment I am still afraid that something could happen to my child. (…)' That's what I said, so I'm very worried a (...) Well, I was not able to get on well with this picture, that my mother had in this moment, when I was so full of stress ... and that I'm so scared that my child may be disabled.(…) How my mother reacts: She runs out of the room, howling. Cries and leaves the room. (BI-BB-2013/255-287)	"In addition, the emotional contact seems to be disturbed. The mother cannot empathize well with her daughter until today. She has no empathic feeling, which of course has more often led to the child's boundaries and needs being neglected. (Line 98 ff.). Grandma may see clearer? Also in contact with the pregnant woman it becomes clear that the mother reacts more to stereotypes (sister with child is easy) than to realize the daughter's true concerns with diabetes." (E_03) "What happens, namely a hardly adequate decompensation of the mother in a perfectly understandable emotional situation of the protagonist, seems like an escalation of a conflict dynamics, to find in a metamorphic but very constant form throughout the interview described. (E_02)"

3.3.1. The subjective disease construct (Table 3, line 1)

Disease metaphor: From a subjective point of view, the onset of diabetes is perceived as a collapse of auto-regulation, such as a paralysis of the whole system, a freezing-up that was hitherto not therapeutically perceived, let alone treated. The protagonist speaks here in the form of a metaphor and thus constructs a connection between the physical and the psychological level, which is repeated here after it has already appeared on the verbal and sub-verbal levels.

The diabetologist follows the metaphorical construct of the protagonist once he realizes that the putative disease-causing stress has usually not been perceived or treated. A psychologist interprets the described pattern as not diabetes-specific but perhaps relevant for autoimmune diseases as a whole. In this way, the protagonist feels resonance for her subjective perception from professionals for the first time in her life.

3.3.2. The observation of the basic auto-aggressive behavioral pattern (Table 3, line 2)

The interpretation group discussed that non-resonant communication acts in this case as triggers, triggering an emotionally threatening childhood situation – something that might have occurred repeatedly, and possibly persisted until it brought the allostasis to collapse. The excessive emotional outbursts seem to point to a recurring existential menacing situation in early childhood which cannot be recollected and only hypothesized on the basis of the current attachment style between mother and daughter. Today, these flashbacks seem inappropriate and thus again create a self-damaging dynamic for the protagonist through aggressive behavior. From a therapeutic point of view, the hypothesis is considered consistent if the affected individuals can use this recognition for resolving this pattern – leading to improved quality of life for the protagonist and those in her social context. Observation of auto-aggressive behavior patterns in many people with T1DM was also reported by other diabetologists as a main structure in T1DM and even more dominant than the diabetes-related problems and in urgent need of treatment.

3.3.3. Immersion in the intrinsic field (Table 3, line 3)

In her interaction with the protagonist, the trained therapist could go into resonance with the protagonist and perceive a constant tension and insecurity regarding a successful or unsuccessful response during the interview. For the therapist, this basic body tension seemed to be related to the basic rigidity of childhood, thereby confirming the fundamental developmental traumatization that has been going on for decades.

3.3.4. Biographical validation

Very common family history without any abuse/mishandling or physical violence

It was known to the protagonist that her father had to flee from Poland to Germany at the age of 7 years with two younger children. The mother can't remember any difficult problems during the Second World War. But since even the grandmother was not able to get into contact with the children, she might have been traumatized during the war without remembering this.

Missing emotional support spoils the image of the holy priest - family

For the protagonist, who was used to perceiving the parental home as an open and inviting place, it was difficult to recognize that due to different reasons, such as inexperience, absence and possibly still existing war-related traumas, there was insufficient emotional support for a proper development of her own affect regulation. When comparing the different stories over the first few weeks of her life, the psychotherapist recommends trusting the felt perception. The protagonist was thankful for this advice, because she was not used to trusting her feelings, but rather to critically evaluating the facts (Table 3, line 4).

Limited emotional affect regulation capacity

In the presentation of life events the psychologist notices that they - despite the stressful ones - are unlikely to lead to the expected emotional affects, like anger, disappointment or grief. Again, from the point of view of the therapist, this indicates an inadequate development of the ability to regulate affects (Table 3, line 5). In particular, the professional therapists perceive the time of onset of the disease as a time of already reduced emotional affect regulation capacity.

3.4 Defining a central crisis and finding the internal sources

A situation that takes place during adulthood becomes a key situation for recognizing the basic relationship between mother, father and daughter. It takes place at a time when the daughter is old enough to look at the event with inner distance, and is thus no longer existentially affected by the parents' reaction.

When the daughter finds herself pregnant and comments about the challenges of pregnancy with diabetes mellitus and about her worries and fears of delivering a healthy child, the mother leaves the room crying. The father comments on the event with the words: „Musste das sein?" ("Did it have to be?", meaning, "could you not have avoided this?"). The protagonist perceived the avoidance reaction of the mother quite often as a pattern of emotional overburden. (Table 3, line 6)

Interpretation:

Missing emotional support in adulthood as a hint to relationship building in early childhood

The mother is not able to provide emotional support to the daughter, even though she could have very well used this support and would have been very happy about it. The father supported the mother and told the daughter not to overstrain her mother (Table 3, line 6). In this envent the protagonist recognizes in this event

a very familiar reaction pattern of the mother – emotional overload. Here the mother explicitly withdraws from the relationship by leaving the room. The emotional needs of the daughter can be neither perceived nor served. Added to this is the role of the father, who supports the mother's position and emotionally 'punishes' the daughter for disturbing the mothers well-being and making her worry.

The adult woman as observer of the mother's inability to offer common emotional support

The adult protagonist can distance herself internally. At the same time, she perceives the familiarity of the feeling of loneliness and sadness. While the adult protagonist can take care of her emotion regulation, the pattern of emotional neglect due to the mother's regulatory incompetence becomes clear. During childhood the experience might have been, from these parental reactions, to negatively evaluate her own needs; not to consider them significant and to negate them.

The permanent neglect of one's own emotional needs fostered through a lack of social support

The father would still have had the opportunity to act as a social corrective by offering the daughter due resonance, but was also unable to do so. From trauma research with children from sexual abuse situations, it is known that due to the lack of social support the children assume that their feelings of legitimate injustice are not confirmed, and therefore offer too little opposition against abuse by the relatives and thus develop, for example, guilt. Thus, the non-perception of the child's needs, as a basic pattern of the relationship between parents and children, leads to the child's suppression and repression of their own emotional perception that "Something is wrong here!". Moreover, since the child is dependent on its relatives for affective regulation during the first years of life, it may be that, due to a lack of presence of the mother/father, or the repeated emotional feeling of overburdening on the part of the mother, the child could have been in a permanent state of stress, which might have led to an overload of allostasis and thus could have had a significant share in the development of an autoimmune disease.

Connection to the inner source

The task of retrospectively making contact with her needs as a child allowed the protagonist to identify with these needs and to honor them as the needs of the child. The child might have to evaluate the emotional situations as threatening. Giving herself the permission to accept the development of this disease as a solution-oriented approach is the true turning point for the protagonist. At this point, the victim becomes the actress who assigns agency to the alleged childlike consciousness and interprets a meaning for this illness, which in her view appears to be consistent: The disease is interpreted by the protagonist as an adaptation to the possibilities of the relationship environment. The mother is overwhelmed by her daughter's emotional and spiritual needs. The disease urges the mother, on a material level (weighing the bread units, boil the urine sugar levels, cleaning the cannulas, syringes) to establish a very intense contact. Even if the child has to keep her actual emotional and spiritual needs back, she can offer the mother a level of relationship that is feasible for her. The act of acknowledging the child's need during the time of illness manifestation allows the protagonist to interpret her diseases as a solution to the dilemma between relationship and emotional demands.

3.5 Appreciation and release

Appreciating one's own emotional distress and acknowledging the biographical situation

The protagonist identified emotional overburdening of the mother, and emotional undersupply to the child as relevant stressors. The intrusion of existentially threatening flash backs have been interpreted as signs of powerful life threatening stressing factors, destroying the allostase of the system and co-causing a chronic

disease. Further aspects like lack of breast feeding, missing social resources, and genetic causes must have enabled the development of such a severe disease. Even though these causes cannot be changed 40 years later, the stress coping strategy can be transformed. By accepting this connection, the child's emotional distress is taken seriously and accepted as the only solution at the time. For the first time, the feeling of recognition of the child's stress load caused by the emotional undersupply creates the possibility of a readjustment of the entire personality. From now on there is the possibility of improved stress management. An external challenge can be considered as inwardly manageable because subjective perception can be considered as a coherent reference. Thus, the external challenge no longer needs to be interpreted as an existential threat.

Biographical recognition

The central crisis was continued as a learned coping strategy: For one, the protagonist had not learned to adequately apprehend and articulate her own needs, so she was repeatedly over-challenged in her life and unable to adequately formulate and negotiate her needs. On the other hand, this led to existential attacks of despair in relatively harmless situations. This realization along with the realization that the protagonist had implicitly transferred this attitude to numerous situations in her life and thus deprived herself of various development opportunities, were very painful and led to a deep mourning.

Latent aggressive/reproachful attitude towards the environment can be taken back

The discrepancy between the protagonists expressive and creative aspirations and capabilities and their limited implementation due to numerous auto-aggressive structures had repeatedly led to a latent, aggressive mood perceived by others as reproachful and negative, thus leading to a self-destructive feedback loop. At the moment of recognition of one's own neglected needs during childhood, the latent reproach to the environment can be withdrawn. The environment is no longer confronted with the tacit expectation of finally recognizing and realizing the patient's primary distress. This eliminates a significant, self-damaging feedback loop. New relationships open up.

Dismissed by forgiveness

The recognition of the former child´s needs is accompanied by the opportunity to forgive the parents. Using the 7 steps approach of Stauss, was helpful in realizing this process.(Stauss, 2010). To forgive the parents and the health care system for not being able to recognize the needs of the little child, letters of forgiveness from the perspective of the offender were written.

A connection with one's spiritual purpose made forgiveness possible. At the moment when the child's concerns were taken seriously and her emotional needs are seen, the protagonist can forgive the parent, because the need of the child is justified. Only at the moment when the child is accepted in its emotional desperation because she is allowed to experience the emotional deficiency as so existentially threatening that the whole immune system broke down, can the trauma as a repetitive, unconscious pattern be transformed.

3.6 Identifying resources and needs

Identification of cognitive, emotional, vital, social and spiritual resources

The parental home offered numerous opportunities for cognitive, artistic and social development. It was considered very hospitable and made room for people from many cultures. The parents were networkers of various religious currents, thus creating a strong social field. The diverse resources can now be identified and

reactivated.

Identifying (developmental) needs

The deficits, at the level of embedding in the physical body, are treated with rhythmic massage, an anthroposophic medical method that helps release the tensions emanating from the body (Bertram et al., 2005; Ostermann et al., 2008).

Because of the lack of emotional learning opportunities in childhood, there was an enormous need for ripening in terms of emotional skills. The basis for this was a training in Berking's emotional competences (Diedrich et al., 2016). Self-compassion as a strategy of emotion regulation helped to get in touch with the needs of the 'inner child' and to trust the needs of this aspect of personality.

The overcoming of the patterns of behavior (outbreaks of rage) written deep into the body was accomplished with the aid of Maja Storch's resource-oriented self-management tool and the mediation therein for the initiation of new patterns of behavior (Storch, 2004; Storch et al., 2007).

3.7 Set up new behaviors and closed loop

The process might be repeated again if necessary. The process was useful on the level of emotional and spiritual needs for perception and realization. A vision arose to further investigate how far it might be possible to combine psychiatric and physical treatment to perhaps solve the emotional situation before, or at the beginning of, such an autoimmune disease.

4. Discussion and conclusion:

From the point of view of the protagonist, the current treatment of diabetes mellitus in general shows little understanding of the complex implicit crisis of the child/person concerned. The emotional distress of the child in this specific case is answered merely with physical life support. At this level, the relationship with the mother is constituted. She dedicates herself with much effort to working out urine sugar levels and weighing bread. The emotional needs of the child are ignored. In the aftermath, the protagonist is psychologically frozen and hardened. Outwardly, she achieves best grades in her high school diploma (Abitur 1.0) and is an obedient child to her parents. The diabetologists also focus exclusively on the physiological parameter – and the emotional needs of the child remain unconsidered. Diabetology has been developed as a medical sub-discipline that is closely linked to the development of a medical understanding that excludes the soul as an existing dimension and defines psychological aspects as epiphenomena (Berger, 2003). The concept of Scharmer (Scharmer, 2009) not only offered the opportunity to analyze the actual situation through the deep turning point, but also to transform it. The protagonist was able to reconnect with herself as a child and acknowledge her distress. At the level of the metaphor, the child can be seen as having provided the makeshift solution of choosing illness as the best possible way to deal with her emotional situation and, in this way, receive intensive attachment and care. In this particular case, the protagonist hypothesizes that a stress pattern identified by introspection can be regarded as one (of several) disease factors and thus (co-) causally leading to the immunological destruction of the beta cells. Whether this hypothesis can be verified or not, is less relevant in this context because it is a subjective interpretation (even when others may come to other conclusions) helpful for coping. As a method, introspection was chosen as a tool of observation and critical reflection of one's own behavior. By discussing the relevance of pattern identified with subject matter experts, it was possible to create a resonance space that enabled individual self-actualization. The recognition of a lack of emotional resonance as a triggering cause of illness enabled the person concerned to relieve auto-aggressive behavioral patterns.

How can the hypothesis presented here be examined scientifically? The central topic deals with a question of verifiability in the context of the mind-body problem. Research is always influenced by forms of pre-understanding within the context of certain schools of thought (Fleck, 1980), or paradigms (Kuhn, 1976),

where only certain approaches are allowed and others appear as if imperceptible and thus unthinkable or just unscientific. While it is usual that materialistic and idealistic positions are contrasted, the current dualistic position allows for the existence of emotional or spiritual processes and material processes as complementary to each other (Walach, 2005). In doing so, these different realms of reality are also perceived and investigated with their own independent methods. In the constructivist sense, there can be different realities and forms of 'truth', since their respective perceptions are influenced by respective context factors. However, if we wanted to examine these perceptions for their relevance to people with T1DM, then this would require a scientifically-theoretical position that considers the emotional and spiritual factors to be as relevant, and as interesting, as the physical, in terms of how they can influence the resolution of triggering stress factors in order to improve the quality of life of people with T1DM. One question that should be addressed is whether the protagonist can have her introspections verified by other methods, and another is whether other people with T1DM can also reduce the progression of their illness, and thus improve their quality of life, by identifying and resolving their original stress situations.

Different approaches are conceivable

A pragmatic approach examines interventions with regard to their respective emergent effects on the respective levels with respectively specific instruments. In this way it can be elaborated as to how an intervention that helps people train their ability for subjective perception performs better than an intervention that works only on the physical, or other, level. For example, Michalsen and Büssing compared the effects of eurythmy therapy, yoga and physical exercises in people with chronic back pain (Büssing et al., 2017). Here, at the physiological pain level, all three interventions were helpful, while at the level of psychological quality of life yoga and eurythmy were effective, and only eurythmy was effective at the (higher) level of self-efficacy. Eurythmy is an anthroposophic medicinal language and body therapy that focuses on the development of a participant's ability for the self-perception of one's own inner-space (Berger et al., 2015). For a pragmatic scientific understanding, this is a very productive approach, but does not explicitly question the translation process from one level to the other. Various attempts have been made, especially the semiotic approaches of Uxkuell and Wesiak. Alma Bucci (Bucci, 1997) describes mediation between the levels she had designated (symbolic verbal, symbolic nonverbal and pre-symbiotic level) as a referential process in which images represent the role of the translation from the pre-symbiotic body level to the verbal level. Through images, she considers it possible to translate the body-related level into the verbal level. Various therapy methods also work at this level. Psychoneuroimmunology also describes this interface. Schubert has developed this for the Integrative Case Study, where physiological parameters are measured and the psychotherapeutic protocols are recorded. (Schubert and Fuchs, 2010; Schubert et al., 2012). The possibility of resolving behavioral patterns by recognizing the underlying causes behind a symptomatology could be shown in other contexts, especially for people with epilepsy (Michaelis et al., 2017), but also in the case study of Schubert et al. in a patient with lupus erythymatodes (Schubert and Fuchs, 2010). A disease-specific generalization of patterns does not seem permissible for the time being, even though Schubert hypothesizes the theme of separation for lupus patients. Based on our analysis of biographical interviews with people with epilepsy, it becomes clear that very differentiated, individual pattern recognition processes are necessary, even in people with externally identical diagnoses (Michaelis et al., 2017).

On the basis of his individual case studies using the example of lupus erythematous, Christian Schubert hypothesizes the possibility of calling autoimmune diseases auto-aggression diseases. The auto-aggressive behavior pattern could also be identified in this particular case. If this hypothesis could be proven, psychotherapy could be used as an additional standard therapeutic supporting option in patients with T1DM and other AID. We have found other indications for this hypothesis: Attentive observation of one's own behavior served as the key to identifying self-aggressive behavioral patterns.

For a qualitative single case study in a young anorectic patient with T1DM (Bräutigam and Danzer, 2005), the operationalized psychodynamic diagnosis (OPD) (Arbeitskreis OPD, 2006) was chosen as the basis for the case presentation. The OPD consists of four psychodynamic and one descriptive axes: The

first four axes are derived from a psychodynamic understanding derived from psychoanalysis. Very similar themes appear. Here, too, the topic of rejection and excessive demands is described as an essential relational experience of the young woman. With her, too, there is a function of symptomatology that punishes both her and others. Excessive care needs to develop on the basis of chronic, emotional undersupply. But even if there are certain similarities in the patterns of perception and behavior, it is assumed that this is not a basic pattern for people with T1DM but an individual pattern.

Also, a case series with several cases could be carried out, based on the work of Schubert with lupus erythymadodes (Schubert and Fuchs, 2010).

In this case, is the T1DM partly a consequence of developmental trauma?

A psychological trauma can be understood as a kind of soul injury or as a vital discrepancy between threatening situational factors and individual coping possibilities, which is accompanied by feelings of helplessness and unprotected abandonment, thus causing a permanent shock to self and world understanding (Karatzias et al., 2017). Post-traumatic stress disorder is understood as a psychosomatic disorder in which, under the influence of massive stress, memories are not stored as usual via the hippocampus in the cortex, such that their natural original sensory, affective and cognitive elements are retained (Karatzias et al., 2017). The basic symptoms of post-traumatic stress disorder occur as (Kunzke and Güls, 2003):

- Intrusions (the repeated passing through of the existence-threatening emotional uncertainty) with sometimes retraumatizing effects
- Avoidance and anesthesia (conflicts are shunned for fear of retraumatization, conflicts are not resolved, needs not demanded)
- Hyperarousal
  The excitation threshold lowers after trauma, i.e. even smaller loads lead to greater arousal

These criteria can be used to speak of a post-traumatic stress disorder. Here, the T1DM can be represented as a physical trauma sequence. Thus, the diabetes disease represents, from the point of view of the protagonist, a chronification of the trauma. What burdened her so much more besides the daily stress caused by injecting and measuring blood sugar was the unrecognized emotional causes of her diabetes which led to a retraumatizing relationship between her and her environment.

The behavioral situations as self-similar with body posture in the context of therapy (anger or physical paralysis with contact abortion) as well as with the subjective disease theory seen by protagonist (feeling of complete inner rigidity at the time of disease outbreak) was identified as a stress pattern, less specific with regard to T1DM and more likely to describe general stress situations. But what is striking about this stress pattern is the lack of healing and resolution of the respective stress situation.

In last years, a developmental form of trauma in early childhood has been discussed: Maltreatment, family violence, or disruption in primary caregiver attachment may place children at risk for multiple psychiatric and medical diagnoses that often are refractory to well-established evidence-based mental health treatments. Autoimmune diseases may belong to this category (Ford et al., 2013).

Importance of the ego being

Since the immune system has an essential function in the development of individuality (Zänker, 1996), it may be that the lack of solutions for autoimmune diseases is also causally related to the present medical paradigm of classifying disease entities according to nosologies (Berger, 2013; B, 2015);(Foucault, 1993) and not yet sufficiently conceiving and investigating individual biographical progressions. The growing

number of autoimmune diseases might be the challenge of our time to better understand the development of individuality.

In anthroposophic theory, as in many other philosophies (Danzer, 2011), a multi-membered, emergent image of man is conceptualized: a physical realm, a living realm (plant life, life forces), an animated realm (animals) and a predominantly human realm, called ego-being or spirit, i.e. the realm of the independent selves. In terms of the theory of science, we do not attribute sufficient independent effectiveness to such a form of consciousness in medicine. A bio-psycho-social perspective is now established in psychosomatic medicine. Peter Heusser and others point out that we also have to integrate the spiritual, ego-level as a fourth, specifically human, dimension into medicine (Heusser, 2011; Heusser et al., 2017). Various therapy procedures and medical systems acknowledge an independent spiritual level. For Viktor Frankl, apart from the physical and psychological level, it is the noetic, spiritual, meaning-level or ego-level, that, for example, has enabled people to survive concentration camps (Frankl, 1982). If, therefore, this ego-level can have an effect, then these effects should also be investigated and taken into account, especially in the field of autoimmune diseases, and included as a possibly relevant factor in diagnosis and therapy.

This hypothesis arose at the moment in which the protagonist gives up her detached role of observer and the boundary between observer and observed object is blurred. She identifies with the suffering child, who finds no resonance to her emotional and spiritual needs. The moment she associates herself with these childhood needs and gives these needs credence, they finally find their long-awaited recognition.

This is what Adams (Adams, 2012) rejects as a scientific method for exploring introspection – the blurring of the observer and the observed. But the protagonist feels that what happens here is not mere science, but the recognition of the I-instance of the little child – and thus a piece of healing from a decades-long trauma-like dissociation – a partial separation of the ego, which from then on is only experienced critically. The distancing instance has continued to live on – bravely controlling sugar levels, as if a part of her ego had stepped out of her. The protagonist is able to regain her self-confidence and inner reference by acknowledging her inner sense of a connection between the psychological and the somatic levels, regardless of all medical, psychotherapeutic and scientific claims. Taking this hypothesis seriously, a new interpretation of the history of this specific case becomes possible. The onset of the disease takes place in the so-called Rubicon age. These years around the age of nine are considered by Rudolf Steiner, in accordance with writings concerning developmental psychology from the beginning of the 20th century, as a special crisis situation in which the child has to reconcile with its environment, which can, among other things, lead to demarcation phenomena (Martin, 2012; Berger et al., 2016; Föller-Mancini and Berger, 2016).

The 'crossing of the Rubicon' is used as a symbol for whether the child succeeds, on the emotional level, in developing their own self in contrast to their environment. If a chronic disease develops at just this age, the onset of the disease may be related to one's own ego concept, which prefers to maintain attachment and seeks a solution appropriate to the situation, leaving the mother in constant control and relating through blood glucose control, etc.

Although this solution can maintain the relationship, it is really just a stopgap for the protagonist. The individual need is not resolved. In recognition of her subjective despair; she seeks help externally, in vain, from therapists and doctors. The moment she gives up looking for external support and instead gives her the needed recognition, she loses her depressive state. This meaning-construction seems to have a therapeutic effect. However, this also means that the affected subject can only identify individually significant stress factors.

Thus, if one supports people with autoimmune diseases to identify their individual stress factors and take them seriously, one gives them a way to break the auto-aggressive vicious cycle, and to do this on their own. It is important that the protagonist is able to give meaning to her subjective perceptions. The only decisive factor is the possibility of creating is the identification of individually significant stress factors makes sense if they include the possibility of developing options for action. Therefore, it's not about the identification of „culprits", but the creation of options for actions and solutions for those affected.

Conclusion

The emergence of mental health problems is to date considered principally as a co-morbidity, and not a causal factor, of autoimmune diseases. Consequently, diagnosis of an autoimmune disease does not lead to simultaneous investigation as to whether stress-related factors may have played a role in disease causation and, more importantly, whether such factors need treatment in parallel to the blood sugar treatment.

In the presented case, the protagonist hypothesized the emergence of T1DM as linked to attachment-related chronic psychological stress situations. This hypothesis is developed from the first-person perspective through detailed observations and supervised permanent distancing that has taken place over years. The confrontation of one's own perception with other perspectives was the basis for the emergence of a resonant space necessary for self-actualization. The procedure finds a justification in that, as a result, the affected person and her social environment experience relief and a much better quality of relationship. The protagonist describes having been able to give herself the necessary recognition for her unmet needs from childhood so that the permanent attitude of reproach towards her environment could be lifted, which hitherto had continued as a vicious circle of self-damaging experiences. To what extent this can now contribute not only to a short-term, but also to long-term transformation of the vicious cycle into increasing mental well-being, will have to be seen.

The following conclusions can be drawn from this case:

1. The mechanisms of stress production through emotional undersupply appear to be much more sensitive than is generally believed. The connection between the perceived and recognized stress patterns can be further investigated by case studies: Parallel to a psychotherapeutic trauma therapy, stress-related measurement will be carried out in order to further follow the patterns perceived here and to help with the dissolution, as well as to make the connection perceptible between diabetes-specific stress activities and perceived stress patterns.
2. The procedure presented here will be reviewed on the basis of further case studies. Biographical interviews will be prepared in order to work out relevant patterns with those affected, which will then be able to use Scharmer's Theory U to recognize the central moments of crisis and identify available resources and any necessary extenuating requirements. It is basically the individually significant stress pattern to which attention must be paid; that is why embedding is selected in the biographical context.
3. At the initial diagnosis of a stress-related autoimmune disease, a potential stress burden should also be promptly assessed in order to allow the possibility of concomitant systemic psychotherapy for potentially relieving the affected child and parents.

Acknowledgments

We thank Johannes Simstich for daily support, Katja Boehm for translation services and Dr. Martina Möller for proof reading. The experts we thank for participation in the interpretation process and resonance giving.

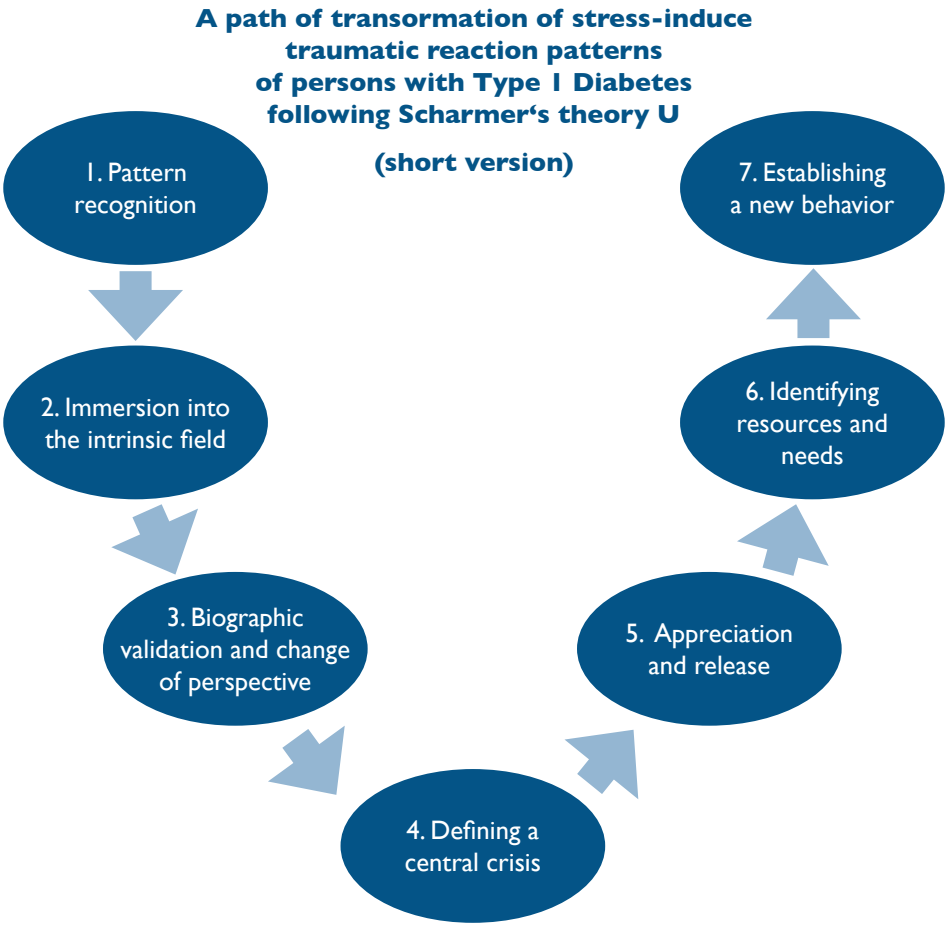
Author Contributions Statement

BB served as the subject, realized the study, provided and managed multi-professional acquisition and interpretation of data, and composed the main article. RM played an important role in data acquisition and interpretation, and contributed to the manuscript draft. PM took part as an expert in data acquisition, and made essential contribution to the manuscript. DM supervised the whole manuscript, supported the research, translated the draft into English and made essential contributions to the manuscript.

Conflict of Interest Statement

The authors declare to have no conflict of interest.

Appendix 1



References

Adams, WA. (2012). „Scientific Introspection: A Method for Investigating the Mind“, in: *e.book*. (http://williamaadams.blogspot.com). Last access: 2018.02.25

Arbeitskreis OPD (ed.). (2006). *Operationalisierte Psychodynamische Diagnostik OPD-2: Das Manual für Diagnostik und Therapieplanung*. Bern: Hogrefe, vorm. Verlag Hans Huber.

Berger, B. (2015). „Möglichkeiten und Gefährdungen der Individualitätsentwicklung im Kontext medizinischer Betreuung am Beispiel des insulinpflichtigen Diabetes mellitus, Typ 1,“ in *Die menschliche Individualität - verloren und neu gesuch*t ed. P.H. Johannes Weinzirl. (Würzburg: Königshausen und Neumann), 139-158.

Berger, B. (2003). *Krankheit als Konstruktion - Diabetes mellitus*, Essen: Karl und Veronica Carstens-Verlag

Berger, B., Bertram, M., Kanitz, J., Pretzer, K., and Seifert, G. (2015). „Like walking into an empty room“: effects of eurythmy therapy on stress perception in comparison with a sports intervention from the subjects‘ perspective-a qualitative study. *Evid Based Complement Alternat Med* 2015, 856107. doi: 10.1155/2015/856107.

Berger, B., Föller-Mancini, A., Martin, D., and Heusser, P. (2016). „Das Rubikonkonzept in der Waldorfpädagogik und seine empirische Überprüfung“, in: *Forschungstag der Universität Witten/Herdecke*).

Bräutigam, B., and Danzer, G. (2005). *„Meanwhile I'm a Convinced ‚Psychosomat'“—Case-study of a young female adult with diabetes mellitus type 1 and severe anorexia.*

Bucci, W. (1997). *Psychoanalysis and Cognitive Science: A multiple code theory*. New York: Guilford Press

Bucci, W. (2002). The referential process, consciousness, and the sense of self. *Psychoanalytical Inquiry* 22(5), 776-793.

Burkart, T., Kleining, G., and Witt, H. (2010). *Dialogische Introspektion- ein gruppengestütztes Verfahren zur Erforschung des Erlebens* ,Springer Fachmedien Wiesbaden Verlag für Sozialwissenschaften

Büssing, A., Jung, S., Lötzke, D., Recchia, D., Robens, S., Ostermann, T., et al. (2017). „Randomized clinical trial to treat patients with chronic back pain: a comparison of the efficacy of Yoga, Eurythmy therapy and standard physiotherapy.“, in: *World Conference of Integrative Medicine and Health* (WCIMH), ed. B.C.a.A. Medicine).

Danzer, G. (2011). *Wer sind wir? Auf der Suche nach der Formel des Menschen*. Berlin: Springer

Ehlert, U., and Kanel, R. (2011). *Psychoendokrinologie und Psychoneuroimmunologie.* Berlin, Heidelberg, New York: Springer

Feest, U. (2014). Phenomenal Experiences, First-Person Methods, and the Artificiality of Experimental Data.

Föller-Mancini, A., and Berger, B. (2016). „Der Rubikon als Entwicklungsphänomen in der mittleren Kindheit“ in *Handbuch Waldorfpädagogik und Erziehungswissenschaft*. ed. J. Schieren. Weinheim: Benz, S.270-300.

Ford, J.D., Grasso, D., Greene, C., Levine, J., Spinazzola, J., and van der Kolk, B. (2013). Clinical significance of a proposed developmental trauma disorder diagnosis: results of an international survey of clinicians. *J Clin Psychiatry* 74(8), 841-849. doi: 10.4088/JCP.12m08030.

Foucault, M. (1993). *Die Geburt der Klinik. Eine Archäologie des ärztlichen Blicks*. Frankfurt a. M.: Fischer Wissenschaft

Frandes, M., Timar, B., Timar, R., and Lungeanu, D. (2017). Chaotic time series prediction for glucose dynamics in type 1 diabetes mellitus using regime-switching models. *Sci Rep* 7(1), 6232. doi: 10.1038/s41598-017-06478-4.

Frankl, V.E. (1982). *...trotzdem Ja zum Leben sagen. Ein Psychologe erlebt das Konzentrationslager*. München: Deutscher Taschenbuch Verlag.

Franzel, B., Schwiegershausen, M., Heusser, P., and Berger, B. (2013). Individualised medicine from the perspectives of patients using complementary therapies: a meta-ethnography approach. *BMC Complement Altern Med* 13, 124. doi: 10.1186/1472-6882-13-124.

Grawe, K. (2004). *Neuropsychotherapie*. Hogrefe Verlag GmbH + Co.

Heusser, P. (2011). *Anthroposophische Medizin und Wissenschaft: Beiträge zu einer ganzheitlichen medizinischen Anthropologie*. Stuttgart: Schattauer.

Heusser, P., Weinzirl, J., Ebersbach, R., Berger, B., Weger, U., Buessing, A., et al. (2017). A humanistic understanding of persons as a prerequisite for person-centeredness. *Complementary Medicine Research* 24, 3-9.

Jüttemann, G., and Thomae, H. (1999). *Biographische Methoden in den Humanwissenschaften.* Weinheim und Basel: Beltz.

Kafka, F. (1997). *Die Erzählungen, Originalfassung*. Frankfurt/Main: Fischer Taschenbuch.

Karatzias, T., Cloitre, M., Maercker, A., Kazlauskas, E., Shevlin, M., Hyland, P., et al. (2017). PTSD and Complex PTSD: ICD-11 updates on concept and measurement in the UK, USA, Germany and Lithuania. *Eur J Psychotraumatol* 8(sup7), 1418103. doi: 10.1080/20008198.2017.1418103.

Karrouri, R. (2014). Post traumatic type 1 diabetes mellitus (insulin-dependent): a case report. *Pan Afr Med J* 19, 328. doi: 10.11604/pamj.2014.19.328.5632.

Kiene, H. (2000). *Komplementäre Methodenlehre der klinischen Forschung - Cognition-based Medicine.* Berlin, Heidelberg, New York, Barcelona,Hongkong, London, Mailand,Paris,Singapur,Tokio: Springer

Kunzke, D., and Güls, F. (2003). Diagnostik einfacher und komplexer posttraumatischer Störungen im Erwachsenenalter. *Psychotherapeut* 48, 50–70. doi: 10.1007/s00278-002-0279-9.

Lapping-Carr, L.R., and Heavey, C.L. (2017). Pristine Inner Experience and Descriptive Experience Sampling: Implications for Psychology. *Front Psychol* 8, 2170. doi: 10.3389/fpsyg.2017.02170.

Lazarus, R.S. (1991). *Emotion and adaptation.* London: Oxford University Press.

Lenz, M., Buhse, S., Kasper, J., Kupfer, R., Richter, T., and Muhlhauser, I. (2012). Decision aids for patients. *Dtsch Arztebl Int* 109(22-23), 401-408. doi: 10.3238/arztebl.2012.0401.

Lenzen, S.A., Daniels, R., van Bokhoven, M.A., van der Weijden, T., and Beurskens, A. (2015). Setting goals in chronic care: Shared decision making as self-management support by the family physician. *Eur J Gen Pract* 21(2), 138-144. doi: 10.3109/13814788.2014.973844.

Levine, B., Svoboda, E., Turner, G.R., Mandic, M., and Mackey, A. (2009). Behavioral and functional neuroanatomical correlates of anterograde autobiographical memory in isolated retrograde amnesic patient M.L. *Neuropsychologia 47*(11), 2188-2196. doi: 10.1016/j.neuropsychologia. 2008.12.026.

Manna, R., Salvatore, M., Di Leo, M.A., Scuderi, F., Greco, A.V., Ghirlanda, G., et al. (1991). Relationship between murinary neopterin excretion and islet cell antibodies in type 1 (insulin-dependent) diabetes. *Diabetes Res* 17(1), 33-36.

Martin, D. (2012). Der Rubikon- Eine Annäherung. *Der Merkurstab* 65(4), 304-309

Mason, J.W. (1975). A historical view of the stress field. *J Human Stress* 1(1), 6-12 contd. doi: 10.1080/0097840x.1975.9940399.

Matthiessen, P.F. (2003). „Der diagnostisch-therapeutische Prozess als Problem der Einzelfallforschung „ in *Einzelfallforschung in der Medizin, Bedeutung, Möglichkeiten, Grenzen - Medizintheoretisches Symposium*, eds. T. Ostermann & P.F. Matthiessen. Frankfurt am Main: Verlag für Akademische Schriften (VAS), S.196.

Mayring, P. (2000). *Qualitative Inhaltsanalyse. Grundlagen und Techniken*. Weinheim: Deutscher Studien Verlag.

McEwen, B.S. (2003). Interacting mediators of allostasis and allostatic load: towards an understanding of resilience in aging. *Metabolism* 52(10 Suppl 2), 10-16.

McEwen, B.S., and Getz, L. (2013). Lifetime experiences, the brain and personalized medicine: an integrative perspective. *Metabolism* 62 Suppl 1, 20-26. doi: 10.1016/j.metabol.2012.08.020.

Michaelis, R., Niedermann, C., and Berger, B. (2017). How can we enhance the sense of self-efficacy in epilepsy? Individual answers from two qualitative case reports. *Forschende Komplementärmedizin* 3, 215-224. doi: 10.1159/000468986.

Niggeman, B., and Zänker, K. (2015). „Immunologische Grundlagen der Psychoneuroimmunologie„ in *Psychoneuroimmunologie und Psychotherapie* ed. C. Schubert. (Stuttgart Schattauer), 50-66.

Nygren, M., Carstensen, J., Koch, F., Ludvigsson, J., and Frostell, A. (2015). Experience of a serious life event increases the risk for childhood type 1 diabetes: the ABIS population-based prospective cohort study. *Diabetologia* 58(6), 1188-1197. doi: 10.1007/s00125-015-3555-2.

Nygren, M., Ludvigsson, J., Carstensen, J., and Sepa Frostell, A. (2013). Family psychological stress early in life and development of type 1 diabetes: the ABIS prospective study. *Diabetes Res Clin Pract* 100(2), 257-264. doi: 10.1016/j.diabres.2013.03.016.

O'Connor, A.M., Stacey, D., Entwistle, V., Llewellyn-Thomas, H., Rovner, D., Holmes-Rovner, M., et al. (2003). Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev* (2), CD001431. doi: 10.1002/14651858.CD001431 [doi].

Payne, P., Levine, P.A., and Crane-Godreau, M.A. (2015). Somatic experiencing: using interoception and proprioception as core elements of trauma therapy. *Front Psychol* 6, 93. doi: 10.3389/fpsyg.2015.00093.

Rewers, M., and Ludvigsson, J. (2016). Environmental risk factors for type 1 diabetes. *Lancet* 387(10035), 2340-2348. doi: 10.1016/s0140-6736(16)30507-4.

Roth, G. (1992). „Kognition: Die Entstehung von Bedeutung im Gehirn," in *Emergenz: Die Entstehung von Ordnung, Organisation und Bedeutung*, eds. W. Krohn & G. Küppers. (Frankfurt am Main Suhrkamp), 104-133.

Roth, G. (2001). *Fühlen, Denken, Handeln - Wie das Gehrin unser Verhalten steuert.* Frankfurt am Main: Suhrkamp

Scharmer, C.O. (2009). *Theory U: Leading from the future as it emerges.* San Francisco:: Berrett-Koehler.

Schiepek, G., and Tschacher, W. (1997). *Selbstorganisation in Psychologie und Psychiatrie*. Braunschweig: Vieweg,.

Schubert, C. (2014). Psychoneuroimmunology of the life span: impact of childhood stress on immune dysregulation and inflammatory disease in later life. *Psychother Psychosom Med Psychol* 64(5), 171-180. doi: 10.1055/s-0033-1357175.

Schubert, C. (2015). *Psychoneuroimmunologie und Psychotherapie.* Stuttgart: Schattauer

Schubert, C., and Fuchs, D. (2010). The relationship between alcohol intake and cellular immune activity in systemic lupus erythematosus may change from inhibitory to stimulatory within 2 months of study: findings from an integrative single-case study. *Clin Rheumatol* 29(2), 229-230. doi: 10.1007/s10067-009-1309-6.

Schubert, C., Geser, W., Noisternig, B., Fuchs, D., Welzenbach, N., Konig, P., et al. (2012). Stress system dynamics during „life as it is lived": an integrative single-case study on a healthy woman. *PLoS One* 7(3), e29415. doi: 10.1371/journal.pone.0029415.

Schubert, C., and Schussler, G. (2009). Psychoneuroimmunology: an update. *Z Psychosom Med Psychother* 55(1), 3-26. doi: 10.13109/zptm.2009.55.1.3.

Shapira, Y., Agmon-Levin, N., and Shoenfeld, Y. (2010). Defining and analyzing geoepidemiology and human autoimmunity. *J Autoimmun* 34(3), J168-177. doi: 10.1016/j.jaut.2009.11.018.

Sharif K, Watad A, Coplan L, Amital H, Shoenfeld Y, Afek A. Psychological stress and type 1 diabetes mellitus: what is the link? Expert Rev Clin Immunol. 2018 Dec;14(12):1081-1088. Review.

Stauss, K. (2010). *Die heilden Kraft der Vergebung - Die sieben Phasen spirituell-therapeutischer Vergebungs- und Versöhnungsarbeit.* München: Kösel-Verlag.

Tang, V., Michaelis, R., and Kwan, P. (2014). Psychobehavioral therapy for epilepsy. *Epilepsy Behav* 32, 147-155. doi: 10.1016/j.yebeh.2013.12.004.

Varela, F.J., Thompson, E., and Rosch, E. (1995). *Der mittlere Weg der Erkenntnis - der Brückenschlag zwischen wissenschaftlicher Theorie und menschlicher Erfahrung*. München: Wilhelm GoldmannVerlag.

Vialettes, B., and Conte-Devoix, B. (2013). Does the post-traumatic type 1 diabetes exist? *Medicine des Maladies Metabolique* 7(4), 379-384.

Wahlberg, J., Fredriksson, J., Nikolic, E., Vaarala, O., and Ludvigsson, J. (2005). Environmental factors related to the induction of beta-cell autoantibodies in 1-yr-old healthy children. *Pediatr Diabetes* 6(4), 199-205. doi: 10.1111/j.1399-543X.2005.00129.x.

Zänker, K. (1996). *Das Immunsystem des Menschen: Bindeglied zwischen Körper und Seele Taschenbuch.* München: C.H.Beck.