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## Primary autosensory experience and the aesthetic stage of personality development: From sensory mirroring error to the formation of dependent behaviour

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**Abstract.** In neurobiology and psychoanalysis, there is a growing interest in the role of the thalamus and sensory systems in early development and in the emergence of dependent behaviour. Disturbances in thalamocortical pathways during the first months of life may determine subsequent emotional and cognitive regulation. This meta-study explored the influence of sensory harmonisation and thalamocortical functioning on the early development of the child and on the appearance of dependency patterns, emphasising the importance of identifying sensory disturbances and preventing them in later life. A systematic theoretical analysis of scientific publications from 2016-2025 was conducted, encompassing data from neurobiological research, clinical observations, and psychoanalytic concepts of development. The analysis focused on comparing findings related to thalamic functions, primary reflexes, and maternal-infant sensory adaptation. It was found that disturbances in maternal sensory attunement to the infant's needs hinder the integration of primary reflexes and obstruct the development of vertical regulatory control. The results demonstrated that immature thalamocortical pathways render the infant vulnerable to fragmented sensory signals. Early dysfunctions were shown to contribute to compensatory dependency in adulthood. A new concept of the aesthetic stage of development was formulated, replacing the classical notion of the narcissistic stage by providing a more precise description of the sensory and affective dynamics of the first months of life. An explanatory model was also proposed, linking early sensory mismatches to the formation of dependency patterns. The findings may be applied by psychologists and psychotherapists in the design of early intervention and prevention programmes for dependent behaviour

**Keywords:** maternal-infant synchronisation; thalamus; primary reflexes; top-down control; dependency patterns

### Introduction

In psychoanalysis, personality is viewed as a carrier of unconscious experience, the perception of which is formed from early childhood and is associated with the degree of attachment to the mother. Awareness of this influence enables the transformation, not only of one's self-attitude, but also of the quality of social relationships. Disturbances in the functioning of thalamocortical pathways during the early stages of development can have long-term consequences. On the neurobiological level, these are manifested in the fragmentation of sensory experience, while on the psychological level they lead to disruptions in self-perception and emotional regulation. Research on primary reflexes

demonstrates that their integration is closely linked to maternal sensitivity to the infant's signals and the quality of feedback within the interaction. When maternal sensory tuning to the child is impaired, the infant's natural reflexes fail to receive the necessary confirmation and thus are not integrated into higher regulatory systems, leaving the thalamocortical pathways immature.

As noted by G. Sydykova & E. Rybyanova (2022), the bodily self is formed through emotional experience; when affective signals are not integrated, bodily awareness becomes distorted. This reflects the earliest, infantile experiences related to the perception of one's own body and the body of the mother. When disturbances

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occur in infancy or early childhood and are linked to premature bodily separation from the mother; this results in a catastrophically distorted perception of bodily experience, producing a secondary trauma. The first months of life constitute a unique period in which sensory and neural connections are formed that determine subsequent emotional and cognitive development. During this time, the foundations of the attachment system are laid, and the interaction within the mother-child dyad becomes a key factor in creating a sense of safety and perceptual coherence of the world. Neuroscientific studies emphasise that the thalamus plays not only the role of a relay of sensory signals, but also actively participates in their integration and regulation, thereby establishing the prerequisites for the formation of top-down control and higher cognitive functions (Likhitska & Starovoyt, 2024; Kantarova, 2025).

Sensory prediction error influences the development of dependent behaviour and the regulation of emotional states. Y. Deng *et al.* (2023) concluded that prediction-error signals are involved, not only in learning and motivational processes, but also play a crucial role in the pathogenesis of addiction. Such errors affect behavioural adaptation, as they are related to the brain's adjustment of individual actions according to environmental changes. The process is implemented through the engagement of the orbitofrontal cortex, amygdala, and lateral habenular nucleus. At the same time, F.M. LoFaro *et al.* (2025) demonstrated that individuals with chronic cocaine dependence show diminished neural encoding of sensory prediction error in the ventral striatum and orbitofrontal cortex. The authors noted that this disturbance undermines the brain's ability to evaluate adequately behavioural consequences, and results in a loss of control over actions. The results of a meta-analysis conducted by E. Kennedy *et al.* (2024) revealed that people with substance-use disorders exhibit impairments in the cortico-striato-thalamo-cortical network. In particular, reduced thalamic connectivity was observed with the dorsal anterior cingulate cortex, superior frontal gyrus, and caudate nucleus. These findings support the hypothesis that the thalamus functions as a central hub in the regulation of behavioural and motivational processes.

The first months of an infant's life are thus decisive for the development of the sensory system and for the establishment of top-down regulatory mechanisms. This mechanism allows the cerebral cortex to regulate subcortical structures, ensuring conscious control and the inhibition of automatic reflexes (Gulko & Popovych, 2022). However, disruptions in sensory processing – both exteroceptive (filtering of external stimuli) and interoceptive (perception of internal bodily signals) – form not only the basis of psychopathology, but also a transdiagnostic vulnerability, which underlies the emergence of dependent behavioural patterns (Naydonova *et al.*, 2024). Based on the theoretical

analysis of scientific data, it was established that disturbances in maternal sensory attunement to the infant during the first three months of life lead to the non-integration of innate primary reflexes and the formation of immature thalamocortical pathways. This impedes the development of top-down control and results in the fragmentation of the infant's sensory experience. Subsequently, such early sensory disturbances become the foundation for the formation of dependent behavioural patterns in adulthood, which perform a compensatory function – the stabilisation of unstable sensory and emotional signals.

The analysed publications in psychology and neuroscience describe individual aspects of these processes, examining emotional regulation within the dyad, the role of sensory integration in development, and behavioural addictions in adulthood. However, there remains a lack of an integrative conceptual model that would connect early sensory disturbances with the later emergence of dependent behaviour. These gaps in scientific understanding highlight the need to synthesise existing findings and develop a new approach that integrates neurobiological, clinical, and psychoanalytic perspectives on development. The aim of this study was to determine the role of thalamocortical dysfunction and sensory attunement in the formation of dependent behaviour, as well as to underline the importance of identifying sensory disturbances for the prevention of addictive disorders in the future. To achieve this aim, the following objectives were defined: to analyse current data on the functions of the thalamus and its role in sensory integration; to examine the characteristics of sensory attunement in the mother-infant interaction and the consequences of its disruption; and to identify the relationship between immature primary reflexes, underdeveloped thalamocortical pathways, and the formation of dependent behavioural patterns in adulthood.

## Materials and Methods

The article has a theoretical character; therefore, the methodology was based on the systemic analysis and integration of contemporary concepts, the comparison of empirical results, and the formulation of a new developmental model – the concept of the aesthetic stage. The theoretical framework of this study was grounded in classical psychoanalytic theories, contemporary neuroscientific findings, and the concept of sensory resonance. This created the prerequisites for a new understanding of dependent behaviour as a consequence of early sensory integration disturbances. Initially, a literature search was conducted in the Scopus, PubMed, and Google Scholar databases using key terms related to sensory development, brain rhythmic activity, primary reflexes, and the formation of top-down control. Special attention was given to studies describing the influence of sensory interaction between mother and infant during the first three months of life. During the selection

process, attention was paid not only to the thematic focus of publications, but also to the characteristics of the articles. Priority was given to papers published predominantly within the last five years (some within the last nine years) and cited in other studies, which confirmed their credibility and relevance. The content analysis method was also applied to ensure the inclusion of works representing diverse geographic origins of the authors. The sample consisted of scientific papers and conference materials published in both Ukrainian and English. During the analysis, the scientometric indicators of the journals were considered, excluding publications from journals removed from indexing databases. The process of literature analysis included the comparison of existing concepts and approaches, which facilitated their systematisation and further presentation in the results section. The findings were obtained through comparative analysis and deductive generalisation, which contributed to forming the study's conclusions based on the analysed works.

The analysis and construction of the theoretical model were implemented primarily on the basis of core scientific articles reflecting the relevance of the research. The theoretical model was developed through a deductive approach, implying the generalisation of information from the general to the specific. This method enabled the identification of key concepts and the establishment of relationships between them. The validation of the relevance of these studies was linked to the prevalence of the hypotheses derived from them and their application in subsequent works. To construct a theoretical model of sensory resonance in the mother-child dyad, a systematic analysis of modern neuroscientific data concerning top-down regulation, thalamocortical connectivity, and the extinction of automatic reflexes was carried out (Leong *et al.*, 2017; Zagoory-Sharon *et al.*, 2024). To support the proposed hypothesis, additional data were considered from the analysis of maternal and adolescent reactions in a postural asymmetry test, which revealed correlations between the optic tubercles and confirmed the hypothesis concerning the critical role of the thalamus in the formation of intergenerational regulation from early infancy to adolescence (Grygorieva, 2021). As the basis for sensory synchronisation between mother and child – a factor influencing subsequent linguistic and cognitive development – the study by X. Bi *et al.* (2023) was adopted. This aligns with the concept that disruptions in such synchronisation lead to sensory perception errors, where the child's signals are either unrecognised or distortedly integrated. In the study of neonatal automatic reflexes, it was taken into account that during the early developmental period, there is intensive maturation of thalamocortical connections, which ensure the integration of sensory signals and the gradual transition from automatic, unconditional reflexes to voluntary movements and complex

behavioural patterns (Nielsen *et al.*, 2023). When analysing published sources, special consideration was given to studies of top-down modulation of sensory perception in infants (Xiao *et al.*, 2024). The focus on this aspect allowed for understanding the brain's capacity to regulate and filter sensory stimuli according to context, thereby supporting its subsequent harmonious development. Final conclusions and the establishment of the working hypothesis were made possible through the analysis of thalamocortical connectivity in dependent behaviour (Lor *et al.*, 2023). Thus, the combined use of content analysis, comparative analysis, and deductive generalisation in the study of theoretical materials made it possible to formulate the main hypothesis of the research. The hypothesis was derived from the understanding of infant behavioural models and their manifestation in adulthood. Accordingly, the formulation of the hypothesis became possible through the substantiation of theoretical and empirical data regarding stages of personality development.

To determine the relevance and validity of the analysed theoretical studies, the method of critical evaluation of scientific sources was applied. The relevance of the literature sources was linked to the consistency of the information with methodological studies that formed the basis of the theoretical model. The year of publication, citation rate, and the logical structure of the argumentation were considered. An evaluation scale was introduced to assess the level of relevance and validity along a range from 1 to 5, where 5 indicated the highest level. The relationship between the relevance and validity of the selected materials was determined through the calculation of the Spearman's rank correlation coefficient (Akbash *et al.*, 2022). This coefficient is a non-parametric statistical indicator, calculated on the basis of ordinal variables under conditions of non-normal data distribution.

$$\rho = 1 - \frac{6\sum d^2}{n(n^2-1)}, \quad (1)$$

where  $d$  denotes the difference between the ranks of the studied criteria, and  $n$  is the number of paired observations.

The interpretation of Spearman's coefficient assumed a strong correlation at calculated values from 0.7 to 1.0, a moderate correlation from 0.33 to 0.69, and a weak correlation below 0.33. A positive coefficient indicated a direct relationship, whereas a negative coefficient indicated a monotonic relationship associated with an increase in one variable's rank over another.

## Results and Discussion

During the first three months of life, the brain develops key sensory-regulatory circuits, reflecting the rapid maturation of the central nervous system caused by automatic responses to environmental stimuli. The analysis of primary reflexes provides insights into the

level of early child development. Therefore, a theoretical review of the literature was conducted to identify

features of early reflex development. The most substantiated and relevant studies were selected (Table 1).

**Table 1.** Analysis of published studies on the features of primary reflex development in infants

Literature source	Relevance (A)	Validity (B)	Rank A	Rank B	d	d <sup>2</sup>	$\rho$
H. Toulmin <i>et al.</i> (2021)	5	4.0	4	2	2	4	0.6
V. Leong <i>et al.</i> (2017)	3.5	3.5	2	2	0	0	
M. Cacciatore <i>et al.</i> (2025)	4.0	4.5	2	3	-1	1	
L. Wang <i>et al.</i> (2025)	3.0	4.5	1	3	-2	4	
S. Furutachi <i>et al.</i> (2024)	3.5	5.0	2	4	-2	4	
J. Lassen <i>et al.</i> (2022)	4.5	4.0	3	2	1	1	

**Source:** developed by the author based on the cited studies and the calculated Spearman coefficient

The analysis of scientific publications revealed that the study by H. Toulmin *et al.* (2021) is among the most relevant. The authors noted that during the first three months of life, primary reflexes (Moro, sucking, grasping) should gradually integrate under top-down control and fade under the influence of sensory experience and emotional attunement within mother-infant interaction. The study also indicated that the development of motor function in infants is directly related to the connection between the premotor associative cortex and the thalamus, while cognitive function depends on the link between the primary sensorimotor cortex and the thalamus. The findings of J. Lassen *et al.* (2022) were also found to be highly relevant, demonstrating that sensory disturbances may occur at the subcortical level, long before higher cognitive processes are engaged. This suggests that primary errors in sensory attunement lay the foundation for subsequent emotional and behavioural dysregulation. From a developmental psychology perspective, this reveals a mechanism by which non-integrated neonatal reflexes may persist as sensory-driven subcortical-thalamic patterns, unconsciously fuelling compensatory behavioural tendencies until stable cortical control and co-regulation with the caregiver are established.

The study of M. Cacciatore *et al.* (2025), focusing on the relationship between the thalamus and consciousness, was also deemed significant. The researchers stated that non-specific thalamic nuclei modulate conscious experience through the regulation of synchronisation within thalamocortical loops, highlighting the central role of the thalamus in awareness. The thalamus directly influences the formation of conscious experience by reducing redundant information for processing and by shaping coherent information flow. Through convergent cortico-thalamic projections, the reduction of information load contributes to the normalisation of neural activity. The results of V. Leong *et al.* (2017) were of nearly equal relevance and validity. Using EEG hyper-scanning, the authors found that eye contact between infant and adult triggers phase synchronisation in the beta band, accompanied by increased activation

in the thalamus. This coordination of neural activity between two individuals confirms the role of early communication in supporting developmental synchrony. The study by L. Wang *et al.* (2025) on pain sensitivity in embryos and preterm infants indicated that thalamic projections to the subplate form earlier than to the cortical plate, and these early pathways may be functionally active prior to the full establishment of cortical connections. This implies that reflexive responses may be amplified or preserved through subcortical or transitional structures when cortical control is incomplete or impaired due to functional deficiency or stress conditions. S. Furutachi *et al.* (2024) demonstrated that the thalamus is not limited to its traditional role as a relay of sensory signals to the cortex, but is actively involved in generating prediction-error signals that inform the brain about unexpected or contradictory stimuli. The authors identified a cooperative thalamocortical loop enabling the nervous system to monitor unpredictable events and adjust adaptive responses accordingly. Their research emphasised perceptual prediction errors, rather than the stable formation of sensory representations. The comparison of relevance and validity indices using Spearman's coefficient ( $\rho = 0.6$ ) revealed a moderate correlation between the parameters, confirming that the relevance of research increases in proportion to its empirical substantiation.

Thus, when the "mother-infant" interaction produces sensory perception errors, in which the infant's signals are not recognised or mirrored – for instance, when the mother imposes her own rhythms – the infant's brain receives contradictory information. This creates a sensory perception error, where internal signals are not confirmed by external responses. From the standpoint of predictive neuroscience, such a situation leads to mis-calibration of the thalamocortical system. It can therefore be assumed that, in the future, this establishes a predisposition to dependent behaviour, as external stimuli become perceived as the only way to restore internal harmony. When sensory perception error occurs, cortical inhibition may be delayed, and reflex patterns persist, varying at the level of the

brainstem. These are associated with central pattern generators responsible for swallowing, sucking, and breathing, until cortical integration matures. For example, if the infant is ready for feeding but is instead put to sleep, the rooting and sucking reflexes remain “tense” and unintegrated. Conversely, if the infant is tired and needs sleep, but is stimulated to remain active, the Moro reflex remains hyper-reactive. When the mother is unable to perceive or interpret the infant’s reflexes, the child must adapt to her emotional state and schedule. In this way, the infant becomes a reflection of the mother’s capacity for resonance with others. The absence of resonance with the external world often indicates the lack of internal resonance within the mother herself. In such circumstances, the mother’s attention is directed not to the child’s authentic needs, but to the mechanical fulfilment of caregiving functions. These dynamic forms a narcissistic risk for the infant: the child begins to perceive the self as the centre of attention, which

later complicates the capacity to build reciprocal relationships. Consequently, the child may internalise a pattern of excessive responsibility for others, which inhibits the development of autonomy and flexible interpersonal connections. At the same time, maternal stress can reduce synchronisation between the mother’s and infant’s brains, disrupting emotional resonance. The concept of emotional availability emphasises the mother’s ability to remain open to the child’s affective states, while high contextual stress demonstrates a negative impact on maternal sensitivity. The study also examined the delay in top-down control, a process in which the maturation of the cortex and thalamocortical pathways leads to the gradual suppression and integration of reflexes under the influence of sensory experience and emotional attunement in mother–infant interaction. The analysis aimed to elucidate the causes of cognitive impairments, mechanisms of consciousness formation, and attention regulation (Table 2).

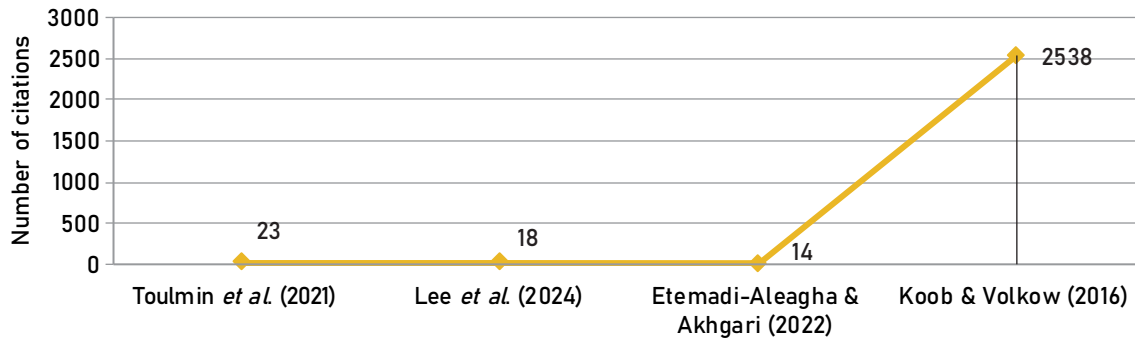
**Table 1.** Relevance and validity of materials according to the analysis of cognitive impairment causes

Literature source	Relevance of materials	Validity of materials	Mean score
G. Leisman & R. Melillo (2022)	4.0	4.0	4.0
M.M. Halassa & S. Kastner (2017)	5.0	4.5	4.75
G.F. Koob & N.D. Volkow (2016)	4.0	5.0	4.5
B.J. Everitt & T.W. Robbins (2016)	4.5	4.5	4.5

**Source:** developed by the author based on the cited studies

During the maturation of the cortex and thalamocortical pathways, a gradual “inhibition” and integration of reflexes occur under the influence of sensory experience and emotional attunement within the mother–infant or caregiver interaction. However, an error in sensory integration may act as a factor delaying the development of top-down regulation, which is responsible for suppressing primary neonatal reflexes. These networks are established at the end of the intra-uterine period and are subject to significant sensitivity to perinatal factors. Delays or instability within these connections may lead to the failure of cortical inhibition of primary reflexes, resulting in their prolonged persistence or weakening due to functional exhaustion, even in the absence of organic brain damage (Leisman & Melillo, 2022). Consequently, the gradual transition from automatic reactions to voluntary control may inhibit cortical development. This leads to the retention of reflexive patterns within subcortical–thalamic networks and to the formation of unconscious behavioural schemas, which may subsequently manifest as dependent or dysfunctional modes of interaction. Later, erroneous prioritisation of stimuli, the development of self-stimulating sensory patterns, impulsivity, and, during adolescence, heightened expectations of “superstimuli” with an increased risk of addictive behaviour, may emerge.

M.M. Halassa & S. Kastner (2017) developed a concept suggesting that individuals with impaired sensory regulation exhibit an inability to distinguish clearly between internally significant signals and external stimuli. This creates a predisposition toward seeking excessively strong stimuli such as alcohol, psychoactive substances, or behavioural addictions. In line with contemporary approaches to the understanding of addiction, G.F. Koob & N.D. Volkow (2016) emphasised three core disturbances: an imbalance between reward and stress systems, a shift from goal-directed to habitual behaviour, and a deficit in executive control. Disruption of thalamocortical connectivity leads to a prioritisation of anticipated “superstimuli” in cognitive processing, whereas natural sensory stimuli are disregarded. According to B.J. Everitt & T.W. Robbins (2016), the gradual shift of behaviour toward automatic habitual actions results from the activation of the dorsal striatum, where cortical control diminishes and subcortical mechanisms dominate. This is associated with impaired descending prefrontal inhibitory control, influencing behavioural regulation. A subsequent analysis of published studies on the thalamus contributes to a more detailed understanding of its functions and its role in consciousness regulation. This process supports a critical review of existing information and the identification of inconsistencies among research findings (Fig. 1).



**Figure 1.** Comparative analysis of citation rates in studies examining thalamic features

**Source:** developed by the author based on the cited studies

The most frequently cited study is that of G.F. Koob & N.D. Volkow (2016), which is associated with the exploration of extended aspects of thalamic functioning. In the context of addictive behaviour, the authors note that deficits in prefrontal control combine with hyperactivity of the reward system and the amygdala, creating a positive feedback loop that reinforces habitual responses and facilitates relapse. Thus, both in infants and in adults, the weakness of “top-down” inhibition over “lower” sensory and subcortical levels results in behaviour being driven by unconscious impulses or habits, rather than by conscious choice. This study reflects important conceptual contributions as it addresses the thalamus in relation to executive function, emotional dysregulation, and motivational systems, integrating findings from neurochemistry, neurophysiology, and psychology. The study by H. Toulmin *et al.* (2021) is also substantially cited. The authors state that, under normal conditions, the fading of neonatal reflexes occurs through the maturation of cortical inhibition mediated by the thalamus and cortico-spinal tracts. A delay in this process does not necessarily indicate organic pathology, but may suggest an underdeveloped network-level control mechanism. The researchers further note that early thalamic projections form a “sensory framework” for the processing of cortical inputs. Their findings showed that thalamus–cortex connectivity in preterm infants is associated with the synthesis between the thalamus and cortical areas, supporting both cognitive and motor development during the first two years of life. However, the established correlation demonstrated that the thalamus is particularly vulnerable to congenital developmental impairments.

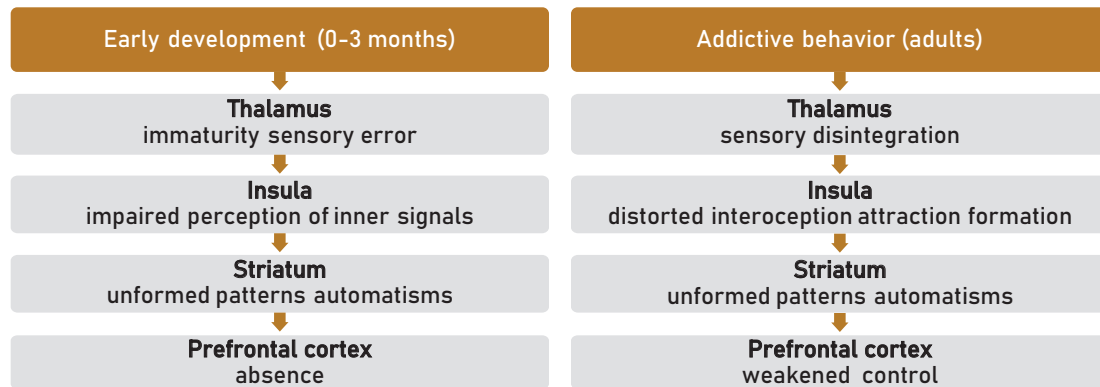
In infants, immature thalamocortical connections are associated with instability of states and reflexive responses. In the study on addictive behaviour by K. Lee *et al.* (2018), disruptions within thalamocortical and salience networks were found to shift attention toward triggers, intensify craving, and reduce awareness. Thus, errors in motor adaptation may occur through mismatches between expected and actual outcomes. The analogy lies in the fact that when sensory salience is skewed, infants develop increased “inquisitive”

reflexivity – such as sucking or grasping as basic sensory reactions – whereas in adults this transforms into craving for a substance or stimulus that becomes the dominant source of regulation. The study by A. Etemadi-Aleagha & M. Akhgari (2022) is the least cited, which is related to its specific focus on analysing developmental responses in children of mothers who used narcotic substances during pregnancy. Substance abuse by pregnant women may result in neurological impairments in their offspring, including attentional difficulties, hyperactivity, and autism spectrum disorders. These findings make it possible to conceptualise addictive behaviour not merely as a disorder of motivation or stress regulation, but as a disruption of fundamental sensory and motor circuits that originate in early childhood. This perspective provides a foundation for a new understanding of addiction as a phenomenon rooted in the early stages of brain development and sensory interaction (Fig. 2).

Thus, both in infants and adults with addictive behaviour, a shared neurobiological principle can be observed. When cortical control mechanisms fail to integrate subcortical impulses, behaviour becomes automatised and resistant to change. This allows addiction to be viewed not only as a disorder of motivation, but also as a disruption of the fundamental sensory and motor circuits established during early development. The human sensory system is in constant dynamic balance between the stream of external stimuli and the internal cognitive models that generate expectations. In this context, two distinct yet interrelated phenomena can be identified: the sensory perception error and the sensory prediction error. According to R.T. Born & H. Bencomo (2021), a sensory perception error arises when a sensory signal is distorted or misinterpreted at early stages of processing – from peripheral receptors to the primary sensory cortex. Perception occurs through the integration of bottom-up sensory data with top-down priors. Their study notes that suppression of sensory data by overly dominant priors leads to perceptual distortion. A sensory prediction error, as described by B. Millidge *et al.* (2021), emerges when the actual sensory input does not match the prediction generated by the brain. The mechanism implies that the nervous system

continuously updates its internal models by comparing incoming information with expected patterns.

Evidence shows that, within the visual system, such comparison takes place in thalamocortical circuits.



**Figure 1.** Model of the formation of addictive behaviour in children and adults under the influence of early sensory disturbances

**Source:** developed by the author based on studies by G.F. Koob & N.D. Volkow (2016), V. Leong *et al.* (2017), H. Toulmin *et al.* (2021), A. Etemadi-Aleagha & M. Akhgari (2022), J. Lassen *et al.* (2022), S. Furutachi *et al.* (2024), L. Wang *et al.* (2025), M. Cacciatore *et al.* (2025)

An imbalance between these two mechanisms is observed in a range of psychopathological conditions – from post-traumatic stress disorder (PTSD) and dissociative phenomena, to psychoses and sensory deprivation. This imbalance increases the risk of developing attention-deficit hyperactivity disorder (ADHD) and addictive behaviours. During the first three to four months of life, the central nervous system does not yet provide full sensory integration, functioning primarily through unconditioned reflexes. This layer becomes the foundation for later bodily connections and intra-psychic experience. However, when a child receives contradictory information and their internal sensations are not confirmed by external responses, a sensory perception error arises. Over time, such an error leads the child to distrust internal signals, orienting instead toward external cues and losing connection with the body and authentic needs. In adolescence and adulthood, such individuals frequently seek external sources of regulation – alcohol, drugs, gambling, or dependent relationships.

Patients with disrupted sensory connections often express their experiences through bodily sensations and somatisation, rather than through emotions. Sensory and bodily experiences are linked to the fundamental right of bodily ownership. Within such an interactional model, the body remains detached or dissociated from the self from the earliest stages of life. With the first occurrence of sensory dissonance, the body begins to be perceived as alien – as an “other” beside the self – because the child becomes attuned to the mother’s desires. Loss or distortion of bodily perception may lead to depression, when the body, deprived of its voice, ceases to serve as a guide for emotions, leaving the child in an inner void where not maternal,

but one’s own feelings become estranged. The brain continues to receive undifferentiated predictions from the body even when its early sensory signals were ignored by the mother. Thus, the child fulfils the mother’s need to find herself, serving as the mirror that the mother lacked in her own childhood. Such sensory deficits form the basis for anxiety and the inability to live through one’s own sensations and emotions, thereby impeding the prediction of one’s personal future.

In the psychoanalytic tradition, Sigmund Freud proposed that the initial stage of a child’s development be designated as primary narcissism. Within this framework, primary narcissism is described as a natural developmental stage of infancy characterised by sensory self-focus and auto-affective experience. At this stage, the infant is centred on bodily sensations – warmth, touch, sucking – without yet differentiating between the self and the other. This is not a pathology, but a necessary foundation for the later formation of self-regulation and the capacity for empathy, as Freud noted (Ross *et al.*, 2024). However, in contemporary scientific and everyday discourse, this term has acquired stigmatising connotations, making its use problematic for describing normal ontogenetic processes. By mirroring the infant’s sensory signals, the mother creates an aesthetics of contact – a primary experience of synchrony, rhythm, and sensory organisation. When this process is disrupted (due to a sensory perception error or sensory inversion), a false self and dependent behavioural patterns may form in adulthood. It is therefore appropriate to employ the term aesthetic stage of personality development, which more accurately reflects the essence of this period. The term aesthetic underscores that at this stage, the formation of the psychic structure occurs through embodied sensory

experience, providing a sense of harmony, wholeness, and beauty of the self in interaction with the mother. Avoiding the stigmatising stereotype of narcissism and instead using expressions such as “autosensoriality” and “aesthetic stage of personality development” helps preserve theoretical precision and sensitivity to infant development without negative connotations. This process can be more precisely defined through the concept of the aesthetic phase of development, which replaces the classical concept of the narcissistic phase and more accurately describes the sensory and affective dynamics of the first months of life.

In psychotherapy with clients exhibiting addictive behaviour and pronounced bodily dissociation, it is essential to facilitate a return to the experience of primary sensorimotor patterns. This may be achieved through physical exercises, somatic practices, and body-oriented techniques that gradually extinguish residual unconditioned reflexes that have remained non-functional and fixed within the psyche. Another key objective is sensory reformation, which involves restoring authentic desires and bodily responses to each sensory stimulus. This allows the client to regain the capacity for sensory sensitivity that was blocked due to early maternal mirroring errors in infancy. The gradual discovery of one’s own sensory preferences re-establishes contact with genuine desires, strengthening the connection with the self. Although this process is lengthy, it yields lasting outcomes: a renewed thalamocortical system emerges in which emotionality is structured not on external imitative models, but on intrinsic sensory priorities. This enables the formation of a unique cognitive and mental representation that may not have developed due to disrupted early contact with the mother and the dominance of imitative behavioural patterns. Based on the conducted research, it is hypothesised that timely recognition and correction of sensory attunement disturbances in early development can reduce the risk of forming dependent behavioural patterns and promote the child’s harmonious growth. Considering contemporary evidence on neuroplasticity, sensory reformation and neurocorrection are recognised as effective at any stage of life. This implies that targeted rehabilitation programmes for individuals with addictive behaviour may include the restoration of sensory receptor functioning, integration of primary reflexes, and correction of top-down regulatory dysfunctions. Thus, sensory reformation may become a key element in the comprehensive therapy and prevention of addictive disorders.

The results obtained from the conducted critical analysis of published studies are consistent with earlier findings on primary autosensoriality and the aesthetic stage of personality development. In the study by I. Danyliuk & N. Burkalo (2024), it was noted that a child’s development based on sensory integration occurs through the perception of information received

via the sensory organs. This process relies on selective perception, which enables the individual to focus on specific details. Sensory development in infancy plays one of the most significant roles in the formation of the functions of the sensory organs and the perception of the surrounding world, supporting the development of cognitive processes. The present findings are in agreement with this view, but place greater emphasis on the analysis of sensory and cognitive functions from the perspective of thalamic functioning, whose main task is associated with the acquisition of conscious experience. The analysis conducted by W. Zheng *et al.* (2023) demonstrated that, during early childhood, thalamocortical connections actively form and reorganise, creating the foundation for sensory integration and cognitive development. Alterations in these connections may influence the specialisation of sensory and associative networks and contribute to vulnerability to the development of dependent behavioural patterns. The development of thalamic subdivisions follows a lateral-medial pattern, whereby the lateral thalamus forms more rapidly than the central part does. In the study by M. Shved (2023), the effects of traumatic experiences on the formation of attachment models were examined. Traumatic experiences affect sensory development, behavioural patterns, identity formation, and cognitive skills. Therefore, a child’s perception of the surrounding world is directly related to the quality of interaction with the mother, which is shaped through attachment patterns. The analysed studies confirm the results of the present research, while providing a more comprehensive account of how a child perceives the world – not only through the development of primary reflexes, but also by examining sensory disturbances.

The development of cognitive processes in children was identified using magnetic resonance imaging (MRI). The results revealed that stronger functional connectivity within the medial temporal lobe was associated with smaller volumes of the right hippocampus and the left thalamus; within the thalamocortical network, it correlated with smaller volumes of the left hippocampus. These findings indicated substantial maturation of the thalamocortical network during the third trimester (Correa *et al.*, 2023). In the present study, the features of thalamic development were not examined through MRI-based approaches; however, theoretical analysis has demonstrated that sensory perception may be incorrectly formed at the early stages of processing. This occurs through the brain’s continuous updating of its internal models. Disturbance of this balance affects the emergence of psychopathological states, which were not addressed in previous research.

The development of a child takes place through the formation of sensory processing and attachment, which influence sensory regulation and interaction with others. A disorder of sensory processing may lead to difficulties in perception and response, hypo- or

hypersensitivity, and constant seeking of sensory stimuli (Bernal Rivas & Avello-Sáez, 2023). The results of the present study fully resonate with this statement, but further emphasise the mechanisms of distorted self- and other-perception identified during the current research. These processes are rooted in the restoration of the sense of internal rhythm and safety. During the first years of life, a process of synaptic pruning occurs, whereby frequently used sensory connections are strengthened while redundant ones are eliminated. When this process is disrupted, the child may develop disorganisation in sensory perception. A child who is not “heard” in their natural sensory experience is compelled to adapt to the sensations of the mother, losing connection with their authentic self. This increases the risk of forming rigid internal models that persist into adulthood and manifest as distrust of one’s own sensations, impaired interoception, and dependence on external behavioural regulators.

The developmental process of the child is characterised by sensory self-focus, associated with the psychic functioning of non-neurotic analysers. This theory was developed by André Green, based on Freudian psychology. Thus, the child’s fixation on sensory experience supports identity formation and interpersonal relatedness. This may manifest as dual narcissism (Pavlovskaya, 2024). In the present study, child development was examined from the perspective of Freud’s concept of primary narcissism. Consequently, the term aesthetic stage is proposed as an alternative designation that preserves the psychoanalytic tradition while avoiding pathologising associations, highlighting instead the central importance of bodily sensory experience in early personality development. Hence, the common features between previously published studies and the current research lie in the shared recognition of the importance of investigating early developmental specificities that later influence the formation of dependent behavioural patterns in adulthood. However, the current study focuses more specifically on identifying the role of thalamocortical connections and their impact on sensory, emotional, and cognitive development. Considerable attention has also been given to analysing sensory attunement disturbances that shape mother-infant interaction – an area insufficiently substantiated in previous research.

### Conclusions

The findings of the study contribute to the understanding of how early sensory integration and thalamocortical connectivity influence the formation of self-regulation, attachment, and subsequent behavioural patterns. The analysis revealed that disruptions in sensory attunement during infancy may lead to persistent maladaptive reflexes, distorted body perception, and dependence on external stimuli in later life. The concept of the aesthetic stage of development offered a non-pathologising

framework for describing early sensorimotor and affective dynamics, thereby integrating psychoanalytic theory with contemporary neuropsychological findings.

Moreover, the study underlined the importance of sensory reformation and neurocorrective approaches in rehabilitation programmes for individuals with addictive behaviour. These interventions – aimed at restoring sensory sensitivity, integrating primary reflexes, and recalibrating top-down control – can enhance emotional regulation and promote harmonious personality development throughout the lifespan.

The analysis conducted made it possible to systematise contemporary data on the role of thalamocortical connections in early development and their influence on the formation of dependent behavioural patterns in adulthood. The review of scientific publications and clinical observations revealed that the first months of a child’s life constitute a critical period during which the sensory and neural systems are formed, determining subsequent emotional and cognitive development. During this period, top-down control is established, regulating the interaction between sensory signals and higher mental functions. It was found that disruptions in sensory attunement within mother-infant interaction led to failures in the integration of primary reflexes. When neonatal reflexes do not receive adequate reinforcement due to delayed or insufficient maternal response, they remain at a primitive level and fail to integrate into more complex neural networks. This results in fragmentation of sensory experience and hinders the development of a coherent system of perception, emotional regulation, and self-awareness. Such disturbances may have long-term consequences, influencing adult behaviour and predisposing individuals to dependent patterns.

Contemporary studies demonstrating the relationship between thalamocortical pathway dysfunction and addictive behaviour were also analysed. It was identified that addiction is not limited to a malfunction of the reward system, but encompasses complex sensory disruptions at various levels of the nervous system – from receptor perception to cortical integration. The sensory prediction error, encoded by dopaminergic neurons, emerged as a key mechanism explaining not only difficulties in learning and motivation, but also loss of behavioural control in addicted individuals. This highlights the necessity of developing new interdisciplinary approaches that integrate neurobiological analysis, clinical data, and psychoanalytic developmental concepts. Based on the findings, the concept of the aesthetic phase of development was proposed, expanding the classical understanding of early narcissism and emphasising the role of sensory interaction in forming the child’s coherent experience. This perspective explains how early sensory disturbances may lay the foundation for future behavioural dysfunctions, including addictions, and opens pathways for the

creation of practical diagnostic and corrective methods at early stages of development.

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## Conflict of Interest

None.

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## **Первинна аутосенсорність та естетична стадія розвитку особистості: від помилки сенсорного відзеркалення до формування залежної поведінки**

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**Анотація.** У нейробіології та психоаналізі зростає інтерес до ролі таламуса та сенсорних систем у ранньому розвитку та формуванні залежної поведінки. Порушення таламокортикальних шляхів у перші місяці життя можуть визначати подальшу емоційну та когнітивну регуляцію. Мета дослідження полягала у вивченні впливу сенсорної гармонізації та таламокортикального функціонування на ранній розвиток дитини та появу залежної поведінки для необхідності розпізнавання сенсорних порушень і забезпечення їх профілактики у майбутньому. Під час дослідження було проведено систематичний теоретичний аналіз наукових публікацій за 2016-2025 роки, що охоплював дані нейробіологічних досліджень, клінічних спостережень та психоаналітичних концепцій розвитку. Аналіз було спрямовано на порівняння результатів досліджень функцій таламуса, первинних рефлексів та сенсорної адаптації матері та дитини. Встановлено, що порушення сенсорної адаптації матері до потреб немовляти перешкоджають інтеграції первинних рефлексів і блокують розвиток вертикального контролю. Результати аналізу показали, що незрілі таламокортикальні шляхи роблять немовля вразливим до фрагментованих сенсорних сигналів. Встановлено, що ранні дисфункції сприяють компенсаторній залежності в дорослому віці. Була розроблена нова концепція «естетичної фази розвитку», яка замінила класичне поняття нарцисичної фази та полягає більш точний опис сенсорної та афективної динаміки перших місяців життя. Також було запропоновано пояснювальну модель, яка пов'язує ранні сенсорні невідповідності з формуванням моделей залежності. Результати дослідження можуть застосовуватися психологами та психотерапевтами при розробці програм раннього втручання та профілактики залежної поведінки

**Ключові слова:** материнсько-дитяча синхронізація; таламус; первинні рефлексі; топ-даун контроль; патерни залежності