Original paper

Archives of Psychiatry Research 2024;60:227-238

DOI:10.20471/may.2024.60.03.05
Received Sept 12, 2023
Accepted after revision Dec 11, 2023

Importance of Developing Emotional Intelligence in Preventing Addiction Syndrome

Viktoriia Mendelo[1], Mykhailo Zhylin[2], Nina Koliadenko[3], Ihnatovych Olena[4], Svitlana Maksymets[5]

[1]Department of Theory and Methods of Practical Psychology, The Faculty of Social Studies and Humanities, South Ukrainian National Pedagogical University named after K.D. Ushinskyi, Odesa, Ukraine, [2]Department of Practical Psychology, Educational and Scientific Maritime Institute of Humanities, Odesa National Maritime University, Odesa, Ukraine, [3]Department of Medical Psychology, Faculty of Dentistry, Institute of Medical and Pharmaceutical Sciences, Kyiv, Ukraine, [4]Department of Occupational Psychology, Ivan Ziaziun Institute of Pedagogical and Adult Education of the National Academy of Pedagogical Sciences of Ukraine, Kyiv, Ukraine, [5]Department of Psychology, Speech Therapy and Inclusive Education, Faculty Social Psychology, Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine

Key words

Emotional intelligence; substance-related disorders; psychotropic drugs; controlled substances; diagnostic tests, routine

Abstract

Aim: The social and psychological significance has prompted the study of Addiction Syndrome (AS) formation. The investigation of Emotional Intelligence (EI) and emotional personality regulation is a relevant consideration in the development of chemical dependency. The study aimed to establish the importance of EI in AS based on theoretical analysis and empirical study. **Subjects and Methods:** The research conducted a comparative analysis of empirical data acquired through a survey of 83 individuals diagnosed with chemical dependence syndrome and 87 individuals void of chemical dependence and other health concerns that could have impacted the study outcomes. The study utilized psychodiagnostic techniques such as the questionnaire "Development of Emotional Maturity of the Personality," Emotional Intelligence Test MSCEIT-V 2.0, methodology for diagnosing various addictions, questionnaire "Propensity to Addiction to the Use of Psychoactive Substances," and the Freiburg Multifactorial Personality Questionnaire. **Results:** The significance of EI in the development and formation AS in individuals aged 18-35 years under the influence of chemical psychoactive substances was theoretically substantiated. A moderate, negative correlation was discovered between EI and chemical dependence (rxy = -0.70) indicating that high EI is associated with low chemical dependence and vice versa. This leads to a decrease in the level of EI at high rates of chemical dependence formation. **Conclusion:** Studies have shown that underdevelopment of EI and its components is associated with an increased propensity to develop chemical dependency syndrome. Individuals may attempt to compensate for this deficiency by consuming psychoactive substances, consuming alcohol, or taking drugs to evoke unordinary sensations.

Correspondence to:
Mykhailo Zhylin
Department of Practical Psychology, Educational
And Scientific Maritime Institute of Humanities
Odesa National Maritime University
Mechnikova str, 34, Odesa, 65029, Ukraine
Phone: + 38 093 993 8 993
E-mail: mihajlozilin@gmail.com

Introduction

Identifying biological, social, and psychological predictors of AS development poses a pressing public health issue [1,2]. The significance of resolving this problem is highlighted at the state level in Resolution № 689 of the Cabinet of Ministers of Ukraine, passed on July 10, 2019, entitled "Issues of monitoring the drug and alcohol situation in Ukraine" [3].

Chemical addiction is a chronic functional brain disorder that occurs due to the underdevelopment of EI manifested in the distortion of the individual's motivational drive. Increased victimisation, reduced self-control, and compulsive seeking and use of addictive substances despite likely negative outcomes have been reported [4]. Emotional intelligence develops through personal socialization in early childhood and is assessed based on the capacity to recognize one's own and others' emotions and regulate emotions to attain specific objectives and foster positive interpersonal connections [5,6]. EI influences characterise cognitive decision-making processes and have an impact on the success of activities. The study of its various aspects is relevant, especially in the context of AS formation [7].

The study is relevant due to the widespread occurrence of AS as a psychological and medical-social problem, and the scarcity of experimental data investigating the role of EI in its development. The study's scientific novelty lies in the theoretical justification of EI's significance in the formation and progression of AS, as a result of chemical psychoactive substance use. The study's results hold practical significance as they enable the provision of psychocorrectional, psychotherapeutic and psychoprophylactic aid to patients with AS, prevent AS occurrence in at-risk groups, and aid the professional development of clinical psychologists and social pedagogues.

The research hypothesis posits that there is a correlation between the development level of emotional intelligence and the manifestation of chemical dependence. This study aims to establish the value of emotional intelligence at AS, through theoretical analysis and empirical research. The research aimed to answer the following research inquiries:

1. How developed is the concept of EI in scientific psychological literature?
2. What EI-related concerns require further development in contemporary psychological science?
3. What is the significance of EI in the progression of AS?

Psychological Content of Emotional Intelligence Concept

EI is a psychological concept that refers to the cognitive domain of an individual and encompasses a series of emotional, communicative, intellectual, and regulatory characteristics [8]. It is defined as a set of emotional perceptions, which enables a person to handle and restructure emotional data. Consequently, one can regulate their thoughts and actions to facilitate effective communication and socialization [9,10]. In psychological science, EI is viewed as an innate trait allowing for the cognitive processing, comprehension, and regulation of both one's own and other individuals' emotions [11]. A person possessing high emotional intelligence is capable of effectively managing and navigating complex emotional situations. The identification of EI as a distinct kind of intelligence draws from H. Gardner's theory of multiple intelligences. Gardner delineated intra- and interpersonal intelligence, while J. Stay and R. Stenberg discussed practical intelligence, and R. Bar-On highlighted emotional-social intelligence. Furthermore, there exist developmental concepts: social intelligence as the foundation of efficient interpersonal communication, professional intelligence that leads to success in one's professional endeavours, motivational intelligence that aids in achieving significant individual goals, and existential intelligence, which prompts the search for answers to existential inquiries [12].

The Structure of Emotional Intelligence

The concept of emotional intelligence is comprised of two components. The first component is organismic perception, which is accomplished through an intrapersonal identification mechanism and meaningful interpretation of emotions. The second component is emotional competence, which is based on a socially oriented interpretation mechanism that facilitates interpersonal communication [12]. EI is linked to higher cognitive functions, such as memory, attention, awareness, reasoning, emotional and behavioural regulation, monitoring of activities, and informed decision-making. Its development fosters emotional, cognitive, and metacognitive skills, and aims to achieve personal, interpersonal and professional success in human activities [7]. EI evaluates a primary competency that ensures the prosperity of human socialisation from an early age. The framework comprises four key components: self-awareness of emotions, empathic understanding of others' emotions, utilizing emotional comprehension to regulate emotions, and managing emotions to achieve desired outcomes while establishing and maintaining interpersonal relationships [6]. EI comprises self-awareness, self-regulation, motivation, empathy, and social skills [13]. It determines an individual's emotional, social and cognitive competence [14,15].

Emotional Intelligence Functions

In interpersonal communication, Emotional Intelligence (EI) facilitates the establishment and preservation

of emotional ease and personal adaptability [16,17]. EI defines the individual's capacity to identify, comprehend and govern their experiences and psychological states. It ascertains the subjective construal of circumstances and occurrences, the formation of fitting affirmative or negative sentiments, and their distinction and expression [16]. EI provides a connection between emotional and cognitive processes. This results in the capability to manage one's emotions and those of others, comprehend and identify one's own and others' emotions, distinguish emotions as positive or negative, and regulate one's emotional state accordingly [18]. EI defines a person's ability to accept themselves and others, as well as their social giftedness, which consists of cognitive, emotional and social abilities [19]. It provides the foundation for communicative competence and is widely acknowledged as the basis for optimal individual performance in social, psychological, and mental health settings, as well as the achievement of success and overall quality of life [18,20,21]. EI prevents exhaustion, psychosomatic disorders, and symptoms of depersonalisation, anxiety, and depression. It enhances an individual's stress resistance, reduces stress, and helps to avert negative consequences of stressful situations [22,23], prevention of aggressive behaviour and victimization [24,25]. Emotional intelligence has a positive impact on reducing psychosocial risks and enhancing human organisational behaviour [26-28]. By cultivating EI, individuals can boost their accomplishments, lower psychosocial risks and improve their organisational behaviour, leading to greater fulfilment in life [29-31].

Peculiarities of Emotional Intelligence in Addiction Syndrome

Addiction Syndrome Development (ASD) is accompanied by the narrowing life interests, one-sidedness, internal disharmony, and personal emotional instability [32]. In both chemical and internet addiction, there is a breach in self-esteem and emotional intelligence, resulting in communication difficulties [33,34]. The interrelationship between EI personal, social, and cultural factors determines its inverse influence on ASD [35]. Violation of the individual motivational sphere, self-esteem lowering, feelings of loneliness, and depressive manifestations, on the contrary, are determinants of addictive behaviour formation [36]. Anxiety and depressive disorders, stressful conditions, alexithymia, social anxiety manifestations, and insecure attachment styles are all recognised as risk factors for AS. Developed EI contributes to the awareness and correction of these problems, which has a psychoprophylactic value in preventing and overcoming AS [37,38]. A literary analysis has shown that the concept of Emotional Intelligence has been around for a while [39]. However, it is still insufficiently researched and lacking theoretical grounding. This has led to inconsistency among researchers in the interpretation of this phenomenon. Additionally, there are numerous models of EI, varied diagnostic tools for measurement, and a need to clarify the peculiarities of EI as a factor that influences an individual's behaviour in different human living conditions [18]. Despite the recognition of EI's vital role in promoting human adaptation to complex social conditions and behavioural self-regulation, the link between EI and addiction to psychoactive substances amongst individuals with AS requires further exploration [8,40]. This knowledge gap prompted the initiation of this study.

Subjects and Methods

The study was conducted using a quantitative method, interviewing people diagnosed with addiction syndrome and healthy people. The research was conducted in a psychiatric hospital between January and March 2023. Individuals diagnosed with addiction syndrome completed questionnaires through Google forms, with assistance from healthcare professionals if necessary, during periods of remission and absence of exacerbations or negative addiction symptoms. Healthy participants voluntarily and anonymously completed the questionnaire during their routine work eligibility medical check-ups. Medical experts gave electronic assistance to the respondents, if necessary, to complete all questionnaires. Each participant was able to complete the survey in an hour or less. Participants were informed that their data would be kept confidential. They were also given the choice to withdraw from the survey or have their responses deleted at any point. The collected data was analysed using Excel spreadsheets.

The study's experimental group included 83 outpatients from the drug addiction clinic who had confirmed clinical diagnoses of chemical dependence. They were chosen for the research through simple randomization, which can be seen in Table 1. The control group was made up of 87 members of the general public who were selected randomly and did not have AS or any other health problems that could have influenced the study's results. The total number of participants in this investigation was 170. The survey's participant count was based on the practicability of executing an all-inclusive study on individuals diagnosed with addiction syndrome, post-treatment, and in the absence of exacerbations. Uniformity in sample size was ensured by selecting individuals without addiction syndrome.

If a participant was unable to answer all questions with the requisite level of quality, their responses were excluded from analysis. The survey encountered potential obstacles such as unwillingness to answer certain questions, apprehension regarding survey anonymity, and the involvement of participants with an identified addiction syndrome. Where barriers were encountered, the participant's results were either disregarded or continued to complete after obtaining medical consent and ensuring

their anonymity. If a participant expressed reluctance to include their responses for various reasons, the answers were excluded in the presence of the participant, even after answering all the questions.

The research received ethical commission approval. Both experimental and control research groups' participants provided written consent for research study and use of the study outcomes for scientific purposes During the research process, participants' personal data confidentiality and test result anonymity were ensured. This was accomplished through the use of a Google Forms survey and specialized encryption of the questionnaires. Respondents had the right to access their results and were also able to refuse participation at any stage while maintaining communication with the researchers.

Measurement

The analysis of a survey conducted among individuals with AS and healthy respondents aimed to examine the extent of development of certain aspects of emotional intelligence and identify any disparities in the researched measures. The following psychodiagnostics methods were used to determine the connection between EI and AS:

1. The "Development of Emotional Maturity of the Personality" test-questionnaire comprises 42 statements that identify emotional characteristics of the respondent [41]. The test determines the level of emotional expressiveness, classifying it as high, average, or low. The indicators include Emotional Expressiveness (mimic display of emotions), Intro Expressiveness (transformation of emotions into actions), and Extra Expressiveness (the ability to convey one's mood to other people) as well as Emotional Self-regulation (the ability to control one's emotions), Intro Self-regulation (the regulation of one's behaviour), and Extra Self-regulation (the ability to regulate the behaviour of others). The test includes Intro Self-regulation (the regulation of one's behaviour), Extra Self-regulation (the ability to regulate the behaviour of others), Empathy, Intro Empathy (the ability to understand the emotional state of others), and Extra Empathy (the ability to use the understanding of emotions in interpersonal interaction). The assessment contains an Emotional Maturity Integrative parameter. Each subscale has a maximum score of 6 points, while the scale and the Integrative parameter hold a maximum score of 12 and 36 points, correspondingly [41].
2. The MSCEIT-V 2.0 test of emotional intelligence which comprises eight sections of stimulus material, with two sections assigned to each component of the EI model [42]. This approach facilitates the measurement of emotional intelligence attributes, including identifying emotions, promoting emotional thinking, comprehending and assessing emotional information, and managing one's own emotions and those of others. The assessment employs a 5-point Likert scale, where a rating of 1 suggests the lowest level and 5 indicates the highest level of severity for each feature [43].
3. The diagnostic method for identifying susceptibility to various types of addiction, developed by G.V. Lozova, facilitates the identification of predispositions to 13 types of addiction, such as alcohol, internet/computer, love, drug, gaming, nicotine, food, intersex, workaholism, television addiction, religious dependence, dependence on a healthy lifestyle, and drugs, along with a general tendency towards addiction, according to Volnova's [44] report. The addiction assessment consists of seventy statements, each rated on a five-point Likert scale with response options ranging from 'no' (1 point) to 'yes' (5 points), including intermediate options: 'probably not' (2 points), 'neither yes nor no' (3 points), and 'probably yes' (4 points). The individual's inclination level towards a specific type of dependence is determined as follows: A score of 5-11 points indicates a low tendency, 12-18 points indicates a moderate tendency, and 19-25 points indicates a high tendency towards a particular addiction type.
4. The "Tendency to Addiction to the Use of Psychoactive Substances" test questionnaire, authored by I.A. Furmanov, includes 30 statements. It assesses the likelihood of addictive behaviour and scores individuals on a scale from 0-13, indicating a low risk, 14-16 for a moderate risk, and 17 or above for a high risk [44].
5. Freiburg Multifactorial Personality Questionnaire (FPI), contains 114 questions and 12 scales assessing various states and properties of an individual that are crucial for social adaptation and regulation of behaviour. These scales are as follows: I – Neuroticism, II – Spontaneous Aggression, III – Depression, IV – Irritability, V – Sociability, VI – Poise, VII – Reactive Aggressiveness, VIII – Shyness, IX – Openness, X – Extraversion–Introversion, XI – Emotional lability, XII – Masculinity-feminism. The questionnaire aims to diagnose individual traits and characteristics that significantly impact social adaptation and behaviour regulation. Individuals are assigned scores based on evaluations, ranging from 1-3 points for low scores, 4-6 points for medium scores, and 7-9 points for high scores [45].

Statistical Analysis

The data was analysed using Microsoft Excel, wherein it was collected, sorted and visualised. The parameters were compared through the Student's t-test for statistical significance, and the correlation between each parameter was determined using Pearson's correlation coefficient (rxy) with appropriate scaling methods applied. The calculation was performed using the Social Science Statistics online calculator. In case of loss to follow-up with respondents diagnosed with addiction syndrome, the survey was continued after a certain period of time or repeated whenever possible. The problem of data loss with healthy respondents was resolved by recruiting additional respondents to achieve the required number of fully completed questionnaires.

Results

Table 1 shows the generalised characteristics of the experimental and control group respondents, demonstrating their comparability in the most important parameters, apart from the occurrence of AS and its effects.

Analysis of respondents' demographic data shows that addiction syndrome affects marital status and many other indicators of social well-being, professional, and family status. In the control group, a significant proportion of respondents are either employed (42.5 %) or students (40.2 %), while only 12.6 % are registered as of-

Table 1. Experimental (A) and control group (B) sociodemographic breakdown

Data	Parameters	Study group			
		A		B	
		n	%	n	%
Age (years)	18-20	16	19.3	19	21.8
	21-23	21	25.3	22	25.3
	24-26	18	21.7	20	23.0
	27-29	14	16.9	15	17.2
	30-32	9	10.8	7	8.0
	33-35	5	6.0	4	4.6
Sex	male	46	55.4	49	56.3
	female	35	42.2	38	43.7
	third (gender)	2	2.4	–	–
Occupation	student	24	28.9	35	40.2
	employee	32	38.6	37	42.5
	unemployed	12	14.5	11	12.6
	other	15	18.1	4	4.6
Marital status	married	21	25.3	37	42.5
	in a relationship	39	47.0	34	39.1
	single	23	27.7	16	18.4
Presence of children	no children	53	63.9	31	35.6
	1-2 children	22	26.5	42	48.3
	3 or more children	8	9.6	14	16.1
Accommodation	owned housing	12	14.5	27	31.0
	rented housing	26	31.3	34	39.1
	dormitory	24	28.9	15	17.2
	living with parents	16	19.3	11	12.6
	other	5	6.0	–	–
Income level	high	16	19.3	19	21.8
	medium	42	50.6	51	58.6
	low	25	30.1	17	19.5
AS (ICD-10)	F10.2 alcohol consumption	41	49.4	–	–
	F12.2 cannabis use	26	31.3	–	–
	F13/2 sedative and/or hypnotic drug use	12	14.5	–	–
	F19.2 use of complex medication and others	4	4.8	–	–
Total		83	100	87	100

Table 2. Research results of the experimental (A) and control group (B) according to the test-questionnaire "Emotional maturity development of the personality"

Scale	GPA		Student's t-test	p
	A	B		
Ek	6.63 ± 0.15	7.61 ± 0.24	-5.98	
IEk	3.72 ± 0.04	3.48 ± 0.12	3.29	
EEk	3.13 ± 0.22	3.87 ± 0.19	-4.41	
S	6.25 ± 0.18	7.64 ± 0.20	-8.95	
IS	2.59 ± 0.13	3.25 ± 0.11	-6.71	
ES	3.68 ± 0.16	4.36 ± 0.14	-5.65	< 0.05
Eм	6.45 ± 0.15	8.57 ± 0.12	-19.46	
IEм	3.32 ± 0.19	4.11 ± 0.10	-6.37	
EEм	3.14 ± 0.25	4.28 ± 0.14	-6.93	
EM	19.82 ± 0.24	23.19 ± 0.27	-16.16	
r_{xy}	0.87 - 0.95	0.86 - 0.98		

ficial members of the unemployed population and 4.6 % possess uncertain occupational statuses. Respondents diagnosed with addiction syndrome display poorer marital status characteristics. In the experimental group, only 25.3 % of individuals are married while 27.7 % are single, compared to the control group where 42.5 % of respondents are married and only 18.4 % are single. Housing ownership is also lower in the experimental group, with only 14.5 % having their own accommodation, compared to 31.0 % in the control group. The experimental group exhibits a low-income level in 30.1 % of respondents, whereas the control group shows only 19.5 %.

The development indicators for emotional maturity among respondents have been compared using the Test-questionnaire "Development of emotional maturity of the personality". The results of this comparison are presented in Table 2.

The study reports that participants in the experimental group exhibited less pronounced facial expressiveness (6.63 ± 0.15 and 7.61 ± 0.24 points, $p < 0.05$) and experienced greater difficulty translating their emotions into action (3.72 ± 0.04 and 3.48 ± 0.12 points, $p < 0.05$) when compared to those in the control group. Furthermore, individuals with AS exhibit a significantly lower ability to self-regulate (6.25 ± 0.18 points) compared to their healthy counterparts (7.64 ± 0.20 points, $p < 0.05$), causing them to experience difficulties in regulating their emotions and behaviour (2.59 ± 0.13 versus 3.25 ± 0.11 points, $p < 0.05$). The difference in the empathy index is notably significant, as the experimental group scored only 6.45 ± 0.15 points compared to the control group's 8.57 ± 0.12 points ($p < 0.05$). Furthermore, the integrative parameter of emotional maturity is substantially lower in the experimental group (19.82 ± 0.24 points) compared to the control group (23.19 ± 0.27 points), indicating inadequate development of emotional intelligence in respondents with AS. There is a significant positive correlation between the scales of the technique, with rxy = 0.95 - 0.98 in both respondent groups. Thus, the indicators of emotional intelligence are interdependent, and a decline in a single indicator results in a decline in all other indicator. Table 3 presents the results of determining the development level of respondent EI characteristics from the experimental and control groups using the MSCEIT-V 2.0 Emotional Intelligence Test [42]. It was observed that the degree of expressiveness of all EI traits was substantially lower in the cohort with AS compared to the control group.

There is a high positive correlation (rxy = 0.87 in both groups of participants) between the scales of the method that represent the cognitive and affective components of emotional intelligence. Individuals with AS exhibit a significant deficit in their capacity to detect emotions (3.1 ± 0.5 vs. 4.4 ± 0.3 points, $p < 0.05$) and to comprehend and analyse emotional data (2.6 ± 0.3 vs. 4.3 ± 0.2 points, $p < 0.05$). This phenomenon disrupts the individual's capacity to regulate both their own emotional states (2.5 ± 0.4 vs. 4.1 ± 0.6 points, $p < 0.05$) and the emotional states of others (2.2 ± 0.8 vs. 4.0 ± 0.5 points, $p < 0.05$). However, in individuals who have a di-

Table 3. Experimental (A) and control (B) group results according to the emotional intelligence test MSCEIT-V 2.0

Characteristic EI	GPA		Student's t-test	p
	A	B		
Ability to identify emotions	3.1 ± 0.5	4.4 ± 0.3	-3.86	
Emotional facilitation of thinking	2.8 ± 0.2	4.2 ± 0.4	-5.42	
Ability to understand and analyse emotional information	2.6 ± 0.3	4.3 ± 0.2	-8.17	< 0.05
The ability to regulate one's own emotional states	2.5 ± 0.4	4.1 ± 0.6	-3.84	
The ability to regulate the emotional states of other people	2.2 ± 0.8	4.0 ± 0.5	-3.30	

This table shows the generalized emotional personal characteristics of the experimental group and control group respondent according to the following scales: Ek (Emotional expressiveness, which characterizes the mimic display of emotions), IEk (Intro Expressiveness, which is responsible for the transformation of emotions into action), EEk (Extra Expressiveness, or the ability to convey your mood to other people), S (Emotional self-regulation, that is, the ability to control your emotions), IS (Intro Self-regulation, the ability to regulate your behavior), ES (Extra Self-regulation, or the ability to regulate the behavior of other people), Em (Empathy) - scale, the indicator of which is further refined with the help of additional scales: IEm (Intro Empathy, the ability to understand the emotional state of other people) and EEm (Extra Empathy, the ability to adequately use the understanding of emotions in interpersonal interaction). The general emotional maturity of a person is characterized by the EM indicator (Integrative parameter of emotional maturity).

agnosed addictive syndrome, lower indicators may result from their addiction.

The results of the study of the participants' propensity to various forms of addiction, using the methodology of H.V. Lozova, are presented in Table 4. The data obtained suggests that there are no significant statistical differences between respondents in the experimental and control groups concerning types of dependencies, except on scales measuring food addiction, religious addiction and addiction to healthy lifestyle, which did not reach statistical significance ($p > 0.05$). However, the control group showed a tendency to prefer addiction to a healthy lifestyle as shown in Table 4.

There was a considerable variegation in the general inclination to develop dependencies between the experimental and control groups, with scores of 3.8 ± 0.4 and 2.9 ± 0.3 points, respectively. This difference was expected and significant ($p < 0.05$). The study discovered a

Table 4. Results of diagnosing the tendency to various types of addiction using the method of H.V. Lozova among the experimental (A) and control (B) groups

Type of addiction	GPA		Student's t-test	*p*
	A	B		
Alcohol	4.4 ± 0.2	2.7 ± 0.4	6.58	
Internet-computer	4.3 ± 0.1	2.8 ± 0.2	11.62	
Love	3.6 ± 0.4	2.9 ± 0.3	2.42	< 0.05
Drug	4.6 ± 0.3	1.2 ± 0.5	10.10	
Gambling	4.3 ± 0.4	2.9 ± 0.1	5.88	
Nicotine	4.7 ± 0.3	3.6 ± 0.2	6.02	
Food	3.6 ± 0.5	3.2 ± 0.1	1.36	> 0.05
Sexual	3.5 ± 0.2	3.1 ± 0.2	2.45	
Workaholism	2.2 ± 0.4	3.8 ± 0.3	-5.54	< 0.05
Television	3.9 ± 0.5	2.3 ± 0.8	2.75	
Religious	3.0 ± 0.1	2.9 ± 0.4	0.63	> 0.05
Addiction to a healthy lifestyle	2.8 ± 0.3	3.2 ± 0.5	-1.04	
Medication addiction	4.3 ± 0.2	3.6 ± 0.4	2.69	< 0.05
General tendency to addiction	3.8 ± 0.4	2.9 ± 0.3	3.12	

Table 5. The FPI results indicate differences in the states and personality traits of the experimental (A) and control (B) groups

Scales		Groups		Student's t-test	p
		A	B		
I	Neuroticism	7.5 ± 0.2	3.8 ± 0.4	14.33	
II	Spontaneous Aggressiveness	8.1 ± 0.2	2.9 ± 0.6	14.24	
III	Depression	8.3 ± 0.4	2.2 ± 0.5	16.50	
IV	Irritability	8.6 ± 0.3	2.4 ±0.2	29.78	
V	Sociability	3.2 ± 0.5	5.3 ± 0.4	-5.68	< 0.05
VI	Equilibrium	1.8 ± 0.2	5.1 ± 0.6	-9.04	
VII	Reactive Aggressiveness	7.1 ± 0.3	4.8 ± 0.4	7.97	
VIII	Shyness	7.8 ± 0.4	3.9 ± 0.2	14.42	
IX	Openness	1.9 ± 0.6	5.5 ± 0.1	-10.25	
X	Extraversion-Introversion	5.2 ± 0.5	5.4 ± 0.2	-1.01	> 0.05
XI	Emotional Lability	8.2 ± 0.5	4.7 ± 0.3	10.40	< 0.05
XII	Masculinity-Femininity	4.9 ± 0.2	5.0 ± 0.4	-0.39	> 0.05

significant, inverse relationship (rxy = –0.70) between EI (measured through the questionnaire "Development of Emotional Maturity of the Personality") and vulnerability to chemical dependency (treated by means of the G. V. Lozova method). These findings imply that individuals with heightened EI are likely to display reduced levels of chemical addiction, and vice versa. The findings suggest that a lower level of EI may play a role in the onset of higher chemical dependence. However, addiction itself and its duration may also impact these indicators. At the same time, it could be argued that a higher level of emotional intelligence development is a potential factor in preventing addiction onset. The study findings demonstrate that the mean score on the Furmanov Test-questionnaire for the experimental group is significantly greater at 26.8 ± 0.6 than the control group's average score of 10.2 ± 0.5 points. These results are statistically reliable and significant (Student's t-test = 36.81, $p < 0.05$). Table 5 compares the personal qualities of participants in the experimental and control groups using the Freiburg Multifactorial Personality Questionnaire.

As shown in the table, there are statistically significant differences ($p < 0.05$) between the indicators of the respondents of experimental and control group without AS on all scales, except X (Extraversion-Introversion) and XII (Masculinity-Femininity). The respondents from the control group exhibit a consistent and generalised personal profile, whereas the respondents with AS in the experimental group show a larger discrepancy in various indicators, such as elevated levels of neuroticism, irritability, aggression, depressive symptoms, and emotional lability. These indicators suggest an imbalance. In comparison to the control group, respondents with AS exhibited significantly higher levels of neuroticism (7.5 ± 0.2 vs. 3.8 ± 0.4 points), spontaneous aggressiveness (8.1 ± 0.2 vs. 2.9 ± 0.6 points), depression (8.3 ± 0.4 vs. 2.4 ± 0.2 points), emotional lability (8.2 ± 0.5 vs. 4.7 ± 0.3 points), and shyness (7.8 ± 0.4 vs. 3.9 ± 0.2 points). Conversely, the control group displayed more typical levels of sociability (5.3 ± 0.4 vs. 3.2 ± 0.5 points), equanimity (5.1 ± 0.6 vs. 1.8 ± 0.2 points), and openness (5.5 ± 0.1 vs. 1.9 ± 0.6 points) ($p < 0.05$).

Discussion

According to Lukashevych, individuals are multi-level living systems whereby coherence among the structural, functional, mental, conscious and behavioural levels is crucial for normal life activity [46]. In this study, a criterion for such coherence is the adaptive resourcefulness of the individual in response to changing socio-cultural conditions. This resource is made possible through the cultivation of an individual's emotional aptitude and their capacity for emotional and behavioural self-control, which are components of emotional intelligence and indicative of emotional advancement [41,47]. Effective emotional management, the capacity to competently and flexibly manage one's own emotional reactions and those of others in a dynamic social setting, is widely perceived as crucial for individual achievement across various domains and personal fulfilment. An individual's EI

development level is indicative of their emotional competence [48]. The study affirms established findings in the scientific literature pertaining to the link between the maturation of emotional intelligence and dependence-related conduct, coupled with the emergence of chemical dependency syndrome [49]. The questionnaire known as "Development of Emotional Maturity of the Personality" establishes that AS individuals generally demonstrate below-average emotional intelligence levels, particularly in relation to empathy [41]. The lack of comprehension regarding other people's emotions can result in the inappropriate usage of emotions during interpersonal interactions and hinder one's ability to manage their behaviour. Furthermore, difficulties with identifying and understanding one's own emotions can lead to challenges with emotional and behavioural self-regulation. The study's findings demonstrate an overall deficiency in emotional maturity amongst individuals with AS. Testing participants from both experimental and control research groups using the MSCEIT-V 2.0 Test of Emotional Intelligence provides evidence for the underdevelopment of EI in individuals with AS [42]. This test evaluates all aspects of EI and assesses their level of development [43]. The investigation revealed that people with AS encounter challenges in recognizing emotions and comprehending facial expressions of emotional states, as well as distinguishing mixed and complicated feelings. Insufficient handling of emotions occurs due to a deficient comprehension of them, leading to difficulties with regulating personal emotions and managing those of others. The survey conducted on participants from the experimental and control groups indicated that the majority of individuals in the control group had low or average levels of susceptibility to various addictions. Conversely, the experimental group had higher-than-average or high susceptibility levels, except for addiction to work and healthy lifestyle, which demonstrated the opposite tendency. Addictive behaviour in individuals with AS may reflect social maladjustment as they attempt to escape reality by altering their psychophysiological state, believing it offers security and psychological comfort. Impulsivity and a lack of self-control suggest underdeveloped emotional intelligence. Therefore, EI development level could serve as a criterion for predicting the risk of addictive behaviour and AS development. Individuals with AS may seek compensation for their lack of EI by experiencing unusual sensations, often through the use of alcohol, drugs, and other psychoactive substances. Research confirms a correlation between low EI and a greater likelihood of addictive behaviour. The FPI confirmed the role of EI in social adaptation and behaviour regulation. Individuals with AS who exhibit high scores on the first scale display symptoms of asthenic neuroticism and psychosomatic disorders. On the second scale, those who demonstrate spontaneous aggressiveness reveal a greater likelihood towards impulsive behaviour and a lack of emotional self-regulation due to underdeveloped EI. Individuals with depression display symptoms that are characteristic of depressive states and can be both a cause and a consequence of depression, forming a cyclical pattern.

Moreover, individuals with AS demonstrate high levels of irritability and a tendency towards affective responses, indicating inadequate development of emotional intelligence and deficiencies in emotional and behavioural regulation mechanisms.

The study conducted by Shtyn and Nikolaev found no noteworthy correlation between inadequate emotional intelligence and the emergence of AS in relation to extroversion traits [4]. The non-existence of statistically significant variances in Scale X scores between the experimental and control groups affirms this claim, with ratings of 5.2 ± 0.5 and 5.4 ± 0.2, respectively ($p > 0.05$). The discordance in the data regarding how inadequate EI links to the emergence of AS with extroverted personality can be accounted for by two factors. Firstly, the sample size of respondents may have been insufficient, and a more extensive sample may have yielded diverse outcomes. Secondly, the utilization of varied diagnostic methods to determine individual orientation may also have contributed to the discordance. Although the FPI was developed using Eysenck's EPI personality questionnaire as a foundation, it includes elements of other personality questionnaires. This study findings may have contributed to the observed differences. Ultimately, future research can explore this controversial matter. Emotional intelligence impacts demographic indicators and factors associated with addiction syndrome. The practical implication of these findings is that the development of emotional intelligence indicators may prevent the onset of addiction syndrome. The practical implication of these findings is that the development of emotional intelligence indicators may prevent the onset of addiction syndrome.

The study's limitations were primarily related to the peculiarities regarding the formation of the sample of respondents with AS. It is classified into clusters by the International Classification of Diseases (ICD-10) and is associated with many personal and social factors. This study is of a pilot nature, and a relatively small sample is insufficient for statistically processing indicators to differentiate the specifics of AS development depending on age, gender, education, and other factors. The impact of these factors can only be assessed in a generalized form. Likewise, various variants of ED (such as addiction to alcohol, cannabis, drugs, etc.) are united under the general chemical addiction concept in this study without statistical calculations for each variety. Addi-

tionally, the study's task did not include possible concomitant chronic somatic and mental diseases of both groups and corresponding complications of AS (such as impaired liver function, cardiovascular disorders, alcoholic psychoses, etc.). However, the randomization procedure allowed for the reduction of systematic error risk on the one hand and contributed to the objectification of the general picture regarding the value of EI in AS on the other hand. Detailed individual feature identification studies are planned in prospective studies.

In conclusion, the value of EI in the formation and development of AS resulting from the use of psychoactive chemical substances in individuals aged 18 to 35 years is theoretically substantiated. Research has shown a moderate negative correlation (rxy = -0.70) between EI indicators and manifestations of chemical dependence, indicating a tendency for individuals with high levels of EI to exhibit low levels of chemical dependence and vice versa. This suggests that insufficient EI may contribute to the formation of high indicators of chemical dependence. Individuals with chemical dependence syndrome tend to have lower levels of professional self-realization, material well-being, and family and household well-being compared to those without chemical dependence. Additionally, individuals with chemical dependence syndrome exhibit underdevelopment of facial expressions of emotions, difficulty transforming emotions into action, lack of empathy, and poor emotional and behavioural self-regulation. The study also revealed that individuals with chemical dependence syndrome generally exhibit insufficient emotional maturity. The study revealed that individuals with chemical dependency syndrome struggle with identifying and understanding their own emotions, as well as those of others. This leads to difficulties in analysing emotional information and managing their own and other people's emotions. The study found no significant differences in indicators of food dependence, religious dependence, and dependence on a healthy lifestyle between individuals with chemical dependence syndrome and those without ($p > 0.05$). However, individuals without chemical dependence exhibited a higher tendency towards workaholism (3.8 ± 0.3 points) compared to those with chemical dependence syndrome (2.2 ± 0.4 points) ($p < 0.05$). Furthermore, while the index of a general tendency towards addiction (including alcohol and narcotics) was significantly higher in individuals with chemical dependence syndrome (3.8 ± 0.4 points) compared to those without (2.9 ± 0.3 points) ($p > 0.05$), both groups exhibited significant signs of addictive behaviour (26.8 ± 0.6 out of 30 possible points).

Individuals with chemical dependency syndrome tend to exhibit increased levels of neuroticism, spontaneous aggressiveness, symptoms of depression, emotional lability, and shyness with insufficient sociability and low balance. However, there is no confirmed correlation between AS and extroversion of personality. The study results suggest that the development of chemical dependence syndrome is linked to an underdeveloped EI and its components. Individuals may turn to psychoactive substances, alcohol, and drugs as a way to compensate for the deficiency in EI and the unusual sensations they provide. It sounds like the prospective research will aim to investigate the specific mechanisms underlying depressive states in individuals with AS, particularly those characterized by a "closed circle" type of addiction. Additionally, the research will seek to better understand how affective reactions are affected by the underdevelopment of EI and behavioural self-regulation in AS. Finally, the research will attempt to verify whether there is a connection between the lack of EI and the development of AS in individuals with extroverted personalities. It is important to examine whether addiction syndrome impacts the development of emotional intelligence or if it deteriorates over time due to prolonged addiction. Regardless, the practical significance of these findings highlights the necessity of cultivating emotional intelligence as a preventative measure against addiction syndrome and how improving emotional intelligence can benefit individuals in complex treatment programmes.

Acknowledgements

None.

Conflict of interest

None to declare.

Funding Sources

None.

References

1. Jordan JW. Substance abuse treatment programs: therapists' emotional intelligence in relation to clients' symptom distress outcomes [dissertation]. Phoenix (USA): Grand Canyon University; 2019.
2. Merchán-Clavellino A, Salguero-Alcañiz MP, Guil R, Alameda-Bailén JR. Impulsivity, emotional intelligence, and alcohol consumption in young people: a mediation analysis. Foods. 2020;9:71.
3. Government portal. Cabinet of Ministers of Ukraine. Postanova pro provedennia monitorynhu narkotychnoi ta alkoholnoi sytuatsii v Ukraini [Resolution on Monitoring the Drug and Alcohol Situation in Ukraine] [Internet]. Kyiv (UA):; 2019 Jul. 10: No. 689. Ukrainian. Available from: https://www.kmu.gov.ua/npas/pitannya-provedennya-monitoring-689-
4. Shtyn TM, Nikolaiev LO. Khimichna zalezhnist' yak psykholohichnyy fenomen [Chemical dependence as a psychological phenomenon]. In Perspektyvy rozvytku suchasnoi psykholohii. 2022;(10):98-102. Ukrainian. Available from: http://eph-sheir.phdpu.edu.ua/xmlui/bitstream/handle/8989898989/6102/Perspektyvy_rozvytku_suchasnoi_psicholohii_10_2022.pdf?sequence=1&isAllowed=y - page=99
5. Ichanska O, Zakrevska A. Emotional intellect and empathy as resources of professional training of students-psychologists. Young Scientist. 2019;9(73):272-6.
6. Prakhova S, Makarenko N. The formation of emotional intelligence as the necessary competence for child's socialization. Psychological J. 2020;6:134-42.
7. Drigas AS, Papoutsi C. A new layered model on emotional intelligence. Behav Sci. 2018;8:45.
8. Burkalo N. Psychological features of emotional intelligence. Psychological J. 2019;5:34-49.
9. Petrides KV, Sanchez-Ruiz MJ, Siegling AB, Saklofske DH, Mavroveli S. Emotional intelligence as personality: measurement and role of trait emotional intelligence in educational contexts. In: Keefer KV, Parker JDA, Saklofske DH, eds. Emotional intelligence in education: Integrating research with practice. Berlin (DE): Springer; 2018. p. 49-81.
10. Babiak O. Problem of emotional intelligence in psychological nauts. Educat People Spec Needs: Ways of Development. 2020;1:29-44.
11. Stelmashuk Z, Vakoliuk A. On the issue of the development of emotional intelligence of a personality. Innovat Education. 2019;259-65.
12. Karpenko YV. Axiological content of emotional intelligence as a basis for congruent life fulfilment. Psychology Soc. 2019;1:67-73.
13. Guntersdorfer I, Golubeva I. Emotional intelligence and intercultural competence: theoretical questions and pedagogical possibilities. Intercult Comm Educ. 2018;1:54-63.
14. Keefer KV, Parker JDA, Saklofske DH, editors. Emotional intelligence in education: integrating research with practice. Berlin (DE): Springer; 2018. p. 462.
15. Mattingly V, Kraiger K. Can emotional intelligence be trained? A meta-analytical investigation. Hum Resour Manag Rev. 2019;29:140-55.
16. Sheiko OL. Do problemy vyznachennya emotsiynoho intelektu [On the problem of defining emotional intelligence]. In: Maslov V, Novhorodska Y, Shevchuk M, eds. Modernization of professional training of managers. Proceedings of the II All-Ukrainian scientific and practical Internet conference [Internet]. 2020 [cited 2023 November 27]. p. 109-15. Ukrainian. Available from: http://www.ndu.edu.ua/storage/2020/Materialu_Modern_conf_2020.pdf#page=110
17. Maksom KV. Emotional intelligence: basic conceptual approaches and structural models of socio-psychological phenomenon. Act Probl Psychol. 2018 2018;6:348-55.
18. Mogilyasta SM. Analysis of theoretical approaches for the researching emotional intelligence of a personality. Actual problems of psychology: Psychology talent [Internet]. 2018 [cited 2023 November 27];6(14):362-9. Ukrainian. Available from: http://www.appsychology.org.ua/data/jrn/v6/i14/44.pdf
19. Maksom KV. Socio-psychological peculiarities of the development of emotional intelligence in adolescence and in youthful age. Actual problems of psychology: Psychology of Creativity [Internet]. 2019 [cited 2023 November 27];12(25):164-71. Ukrainian. Available from: http://appsychology.org.ua/data/jrn/v12/i25/20.pdf
20. Colmenero-Navarrete L, García-Sancho E, Salguero JM. Relationship between emotion regulation and suicide ideation and attempt in adults and adolescents: a systematic review. Arch Suicide Res. 2022;26:1702-35.
21. Mazokha I. Analiz problemy emotsiynoho intelektu yak osobystisnoho resursu [Analysis of the problem of emotional intelligence as a personal resource]. Modern Psychology: Problems and Prospects [Internet]. 2020 [cited 2023 November 27];(1):100-4. Ukrainian. Available from: http://dspace.idgu.edu.ua/xmlui/handle/123456789/1294?show=full
22. Rathakrishnan B, Sanu ME, George S, Yin KT, Yahaya, A, Singh S, et al. Emotional intelligence and psychological well-being of rural school students in Malaysia. ECPP. 2019;8:440-444.
23. Sarrionandia A, Ramos-Díaz E, Fernández-Lasarte O. Resilience as a mediator of emotional intelligence and perceived stress: a cross-country study. Front Psychol. 2018;9:2653.
24. Estévez E, Jiménez TI, Segura L. Emotional intelligence and empathy in aggressors and victims of school violence. J Educ Psychol. 2019;111:488-96.
25. Vega A, Cabello R, Megias-Robles A, Gómez-Leal R, Fernández-Berrocal P. Emotional intelligence and aggressive behaviors in adolescents: a systematic review and meta-analysis. TVA. 2022;23:1173-83.
26. Kopp A, Jekauc D. The influence of emotional intelligence on performance in competitive sports: a meta-analytical investigation. Sports. 2018;6:175.
27. Martínez-Monteagudo MC, Inglés CJ, Granados L, Aparisi D, García-Fernández JM. Trait emotional intelligence profiles, burnout, anxiety, depression, and stress in secondary education teachers. Pers Individ Differ. 2019;142:53-61.
28. Miao C, Humphrey RH, Qian S, Pollack JM. Emotional intelligence and entrepreneurial intentions: an exploratory meta-analysis. Career Dev Internat. 2018;23:497-512.
29. Gong Z, Chen Y, Wang Y. The influence of emotional intelligence on job burnout and job performance: mediating effect of psychological capital. Front Psycholog. 2019;10:2707.
30. Lopez-Zafra E, Ramos-Álvarez MM, El Ghoudani K, Luque-Reca O, Augusto-Landa JM, Zarhbouch B, et al. Social support and emotional intelligence as protective resources for well-being in Moroccan adolescents. Front Psycholog. 2019;10:1529.
31. Soto-Rubio A, Giménez-Espert M del C, Prado-Gascó V. Effect of emotional intelligence and psychosocial risks on burnout, job satisfaction, and nurses' health during the COVID-19 pandemic. Int J Environ Res Public Health. 2020;17:7998.
32. Lytvynchuk LM, Kaskov IV. Psychological assistance for individuals, with chemical dependence on different phases of emotional transmission in the process of rehabilitation. Bulletin National Defence University of Ukraine. 2018;49:60-7.
33. Peng W, Li D, Li D, Jia J, Wang Y, Sun W. School disconnectedness and adolescent internet addiction: mediation by self-esteem and moderation by emotional intelligence. Comput Hum Behav. 2019;98:111-21.
34. Wang S, Zhang D. The impact of perceived social support on students' pathological internet use: the mediating effect of perceived personal discrimination and moderating ef-

fect of emotional intelligence. Comput Hum Behav. 2020;106:106247.
35. Ranjbar H, Bakhshi M. The association between internet addiction and emotional intelligence: a meta-analysis study. Acta Fac Med Naiss. 2018;35:17-29.
36. Kircaburun K, Demetrovics Z, Griffiths MD, Király O, Kun B, Tosuntaş SB. Trait emotional intelligence and internet gaming disorder among gamers: the mediating role of online gaming motives and moderating role of age groups. Int J Ment Health Addict. 2020;18:1446-57.
37. Davis RE, Doyle NA, Samuel KD, Wilkerson AH, Nahar VK. The relationship between trait emotional intelligence and problematic alcohol use among college students. Health Promot Perspect. 2022;12:101-9.
38. Obeid S, Akel M, Haddad C, Fares K, Sacre H, Salameh, P, et al. Factors associated with alcohol use disorder: the role of depression, anxiety, stress, alexithymia and work fatigue-a population study in Lebanon. BMC Public Health. 2020;20:245.
39. Kulyk NA, Hiliova LL. Emotional intelligence: the analysis of modern western studies. Problem Mod Psychol. 2018;79-90.
40. Darvishov N. Personal traits and decision making of substance addicts. Problem Mod Psychol. 2019;88-113.
41. Chebykin OY, Pavlova IH. Person's emotional maturity formation. Odesa (UA): SVD M. P. Cherkasov [Internet]. 2009 [cited 2023 November 27]. Ukrainian. Available from: http://dspace.pdpu.edu.ua/bitstream/123456789/103/1/%D0%A1%D1%82%D0%B0%D0%BD%D0%BE%D0%B2%D0%BB%D0%B5%D0%BD%D0%BD%D1%8F%20%D0%B5%D0%BC%D0%BE%D1%86%20%D0%B7%D1%80.%2C%20%D0%9F%D0%B0%D0%B2%D0%BB%D0%BE%D0%B2%D0%B0.pdf
42. Mayer JD, Caruso DR, Salovey P. Emotional intelligence meets traditional standards for an intelligence. Intelligence. 1999;27:267-98.
43. Shyron Y. MSCEIT Emotional intelligence test: description, validation, and adaptation. Galician Economik Journal [Internet]. 2022 [cited 2023 November 27];1(74):141-51. Ukrainian. Available from: https://elartu.tntu.edu.ua/bitstream/lib/38695/2/GEB_2022v74n1_Shyron_Y-MSCEIT_emotional_intelligence_141-151.pdf
44. Volnova, LM. Profilaktyka deviantnoi povedinky pidlitkiv. 2nd ed. [Prevention of deviant behavior of adolescents] [Internet]. 2016 [cited 2023 November 27]. Ukrainian. Available from: https://enpuir.npu.edu.ua/bitstream/handle/123456789/12327/Volnova_profilactika%20deviant.1%20chast.Teoriya.PDF?sequence=1
45. Lutsenko OL. Freiburg personality inventory FPI – validity testing and local standardization. J V. N. Karazin Kharkiv National University. A Series of "Psychology". 2016;49-54.
46. Lukashevych MP. Sotsiolohiia ekonomiky [Sociology of economy]. Kyiv (UA): Karavela [Internet]. 2005 [cited 2023 November 27]. Ukrainian. Available from: https://tourlib.net/books_others/lukashevych.htm
47. Chebykin O, Kichuk A. Study of the relationship of the features of psycho-emotional health with data of life activity in youth. Sci Educ. 2022:22-9.
48. Raievska Y, Soliakova O. Development of emotional personality competence: theoretical discourse. Scientific Works IAPM. 2021;3:127-32.
49. Pereira Leite K, de Marzio Pestana Martins F, Paulino Trevizol A, de Souza Noto JR, Brietzke E. A critical literature review on emotional intelligence in addiction. Trends Psychiatry Psychother. 2019;41:87-93.