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Emotional Intelligence as a Healthy Trained Coping Mechanism for Recovery and Empowerment in SARS COVID-19 Stress

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Abstract

The objective of the current article is to explore the emotional intelligence (EI) as a coping mechanism and training competence in the management of SARS COVID-19 pandemic stress in Albanian students. Methods we administered online is the Mayer-Salovey-Caruso emotional intelligence Test (MSCEIT) and The Scale of Impact of Stressful (Albanian version) for SARS COVID-19, that was standardized by the authors. Data were analyzed by SPSS v.26 and interpreted by Pearson correlation coefficient and t-test. The sample of respondents were 300 students (N=300) from 5 state universities in Albania, of whom 198 female (66%) and 102 male (34%) in range of 19-25 years. The results showed an inverse correlation between pandemic stress symptoms and self-awareness ($r=-.765$, $p<0.01$), pandemic stress symptoms and empathy ($r=-.875$, $p<0.01$) and between pandemic stress symptoms and social skills ($r=-.456$, $p<0.01$). These correlations suggest that the less emotional intelligence the more pandemic stress symptoms. That is, emotional intelligence is a healthy coping mechanism to be used to reduce the pandemic crisis emotions. This study supports the finding that training or treatment that increases emotional intelligence and its related subcategories in individuals should provide a mitigating effect on the crisis emotions of the COVID -19 pandemic stress. We suggest that better preventive mental health public training strategies can be a significant factor not only in reducing subjective distress but also in keeping the immune system strong and healthy.

Keywords: emotional intelligence, COVID-19, stress, healthy coping mechanism.

1. Introduction

Individuals differ in their ability to process information of an emotional nature and in their ability to relate emotional processing to a broader cognition. Human mental processes are dominated by the cognitive relationships and inter-relationships of emotion and intelligence (Berrocal-Fernandez & Extremera, 2006; Faltas, 2016). According to Salovey and Mayer (1997),

emotional intelligence is a part of social intelligence, referring to the ability to control our emotions and those of others, discriminate between them and use this information to guide our thoughts and actions. Considering all the empirical dynamics and studies support, the present article aims to explore the emotional intelligence as a coping mechanism and to train with its competences for the management of SARS COVID-19 pandemic stress in Albanian students. Recent data from the Ministry of Health, the Institute of Public Health and COVID-19 health services suggest that student-aged individuals in Albania are a in-risk target-group of the general population for active infection and passive infection habits and life-routines. In addition, distance learning and confinement have been shown to develop unhealthy habits as bad eating habits, irregular sleep patterns, sedentary lifestyle and continuous stress (Wang et al., 2020). Studies of Wons and Bargiel-Matusiewicz (2011) demonstrated that there is a direct relationship between increased level of emotional intelligence and the ability to cope with stressors and problems. The same authors also revealed that individuals with higher emotional intelligence have higher flexibility in dealing with the stressors. Other studies of Heydari Tafresh and Delfan Azari (2010) showed that emotional intelligence had a significant relationship with stress coping skills. Another research by Rahim Davari (2007) revealed that emotional intelligence, using problem-focused coping skills, had a significant positive correlation with stress management. In the same line, studies of Heck and Oudsten (2008) argue that those individuals who are able to understand and regulate their emotional issues should be able to maintain a better outlook on life and experience better psychological well-being. Goleman (2001) reviewed the classic EI model of Boyatzis and Rhee by categorizing new dimensions of what emotional intelligence would imply (Kanesan & Fauzan, 2019). The new categories included self-awareness; self-management; social-awareness; relationship-management and social skills. Goleman (2001) saw the patterns of emotional intelligence as traits as the individual uses some personal and social skills or competencies to cope with the demands and needs of the ordinary life. In his argument, personal skills included self-awareness and self-management whereas social skills or competencies included social awareness and management. The way we respond to ourselves and others affects every environment of our lives, from interpersonal to domestic and work relationships. When massive traumatic event such as the Global Pandemic occurs, these adaptive personality patterns become over-taxed and people see themselves as a vulnerable-target. Fear and anxiety increase and solidify into a persistent stress disorder. Individuals may at first be asymptomatic, but they can accumulate stress and repress it as an unconscious process. Not only mentally ill diagnosed people, but also those who when under continuous stress might be vulnerable to develop a second distress state, are inhibited from their healthy coping mechanisms. Brooks et al. (2020) reviewed the particular impact of COVID-19 symptoms in the university students and educational system as vulnerable group. Their findings suggest that in quarantine periods young people show high levels of stress, anxiety, confusion and anger that affect their physical and psychological well-being. According to the same authors, physical isolation turn into a learnt life-style which will undoubtedly bring serious changes in human relationships that will undoubtedly have consequences for mental health and well-being. In a review of different articles, various studies showed that COVID-19 is highly associated with experiencing mental health issues as anxiety, depression, panic, acute stress disorder, suicides and schizophrenia as a resulted of the repressed stress (Dai et al., 2020; Galea, Merchant & Lurie, 2020; Goyal, Chauhan, Chhikara, Gupta & Singh, 2020; Jizheng, Mingfeng, Tengda, Ake & Xiaoping, 2020; Wang et al., 2020; Xiang et al., 2020; Zhang et al., 2020). Forms of psychological distress symptoms are not static entities caused by deficits, but dynamic constellations of conflicts and differences that tend to maintain balance between the relationship and self-definition. Physical distance can prevent the spread of the virus in the material-term of saving lives, but we need a social connection to emotionally cope and bare the pandemic-stress, even through telematic communication (Nardone, Bartoli & Milanese, 2020). These short or long-term consequences are of sufficient importance that immediate efforts should be focused on prevention and direct intervention to address the impact of the outbreak (Galea, Merchant & Lurie, 2020).

In their review, Moron and Moron, cited the research of Arpaci et al. (2020) and Maunder et al. (2003) in which it is claimed that as long as emotional responses are a reaction to stress caused by COVID-19 an increased ability to understand and regulate emotional experiences may be a protective personal resource to successfully cope with it (Moron & Moron 2021). These target-groups could infect others living with or around them making distress stronger as it escalates into a doubled psychogenic disorder. Although the pandemic requires a physical distancing, the isolation of a person could be as risky if there is no preventive measure of their mental-health functionality. A total isolation of a sole individual could be as risky as an isolation of a whole society if there is no preventive measure of their mental-health functionality. Stress-related psychiatric conditions including mood and substance use disorders are also associated with suicidal behavior and COVID-19 survivors may be at elevated suicide risk (Conejero, Berrouiguet, Ducasse et al., 2020). Feelings of worthless, hopeless, low-self-esteem and even suicide-ideation and suicide attempts could rise dramatically. In her analytical article, Sher (2000) argues that “social isolation, anxiety, fear of contagion, uncertainty, chronic stress and economic difficulties may lead to the development of depressive, anxiety, substance use and other psychiatric disorders in vulnerable populations as students and individuals with pre-existing psychiatric disorders and people who reside in high COVID-19 areas”. We suggest therefore, that psychoeducation community programs on training *emotional intelligence competence skills as emotional self-knowledge, self-control, motivation, empathy and social skills to be used in rehabilitation for SARS COVID-19 related symptoms in infected and in-risk populations.*

2. Recovery and emotional intelligence empowerment for COVID-19 rehabilitation in growing healthy communities.

Recover can be understood on two different views. It can be an *outcome* which implies the remission of symptoms and disability, measurable through standardized clinical criteria and as a *process*, that is an active, dynamic and individual commitment through which a person tries to take a certain degree of control over his life and to develop strategies to cope with the symptoms, but also stigma, discrimination and social exclusion in the personal space. Existence in the coronavirus or other like-war situation is therefore a stand beyond self-possibilities and should be addressed as an introspective based treatment on one's inner resources such as emotional intelligence traits (Norris et al., 2006). Lockdown isolation may result in lack of social networks and diminished social capital, which can contribute in mental health problems and increased rates of other comorbidity health issues (Srinivasan et al., 2003). Using healthy coping mechanisms such as EI helps in preserving a state of personal wellbeing within the borders of social wellness. Coping mechanisms perform two main functions on our psychosomatic processes:

- (a) they reduce the risk of harmful consequences that could result from a stressful event (coping focused on the problem);
- (b) they inhibit negative emotions resulting from the stressful experience (emotion-focused coping).

Health protection in the today's world is as important as life itself. Our psychological wellbeing is not a static condition, but changes continuously according to the relationship with the natural and social environment. The World Health Organization defines it as “a state of complete psychophysical, mental and social well-being and not only the absence of disease or disability, or a condition of harmonious functional, physical and mental balance of the organism dynamically integrated into its natural and social environment.”

Mental health and mental well-being are fundamental for the quality of life and productivity of individuals, families, communities and nations as already stated in the Helsinki Declaration of 2005: “They give meaning to our existence by allowing us to be creative and active

citizens. (..) Being healthy is a central component of the human, social and economic capital of nations, this must therefore be considered as an essential integral part of others fields of public policy, such as human rights, social assistance, education and employment.”

Mental well-being improves resilience, strengthens confidence in the future, increases the ability to adapt to changes and to face difficulties. In times of strong socio-economic tensions as the COVID-19 pandemic, these actions aimed at strengthening well-being and preventing mental illness are essential, particularly for students as vulnerable groups. Recovery and empowerment are also an important element of healthy development. These processes which include the personal and social skills of emotional intelligence as trained competences, allow the individual and society to take control and responsibility for his own actions and have the objective and the potential to lead to self-fulfillment. The way an individual uses his emotional intelligence reflects his ability to influence to his own psychological recovery and community empowerment.

Studies of Zimmerman (2000) revealed that psychological empowerment arises from the combination of three main components also related to emotional intelligence:

(a) **the interpersonal** component, that is the perceived control and beliefs related to the ability to influence decisions affecting one’s life.

(b) the **interactional** component, that is critical awareness, the ability to understand and analyze one’s social and political environment which includes the capacity to understand causal factors, their resources, their relationship with the issue, as well as the factors that influence their decisions.

(c) **the behavioral** component, that is the participation, the attempt to exercise control within one’s social environment.

Psychological empowerment associated to emotional intelligence contains other four dynamic dimensions that when interacting with each-other produce a healthy coping mechanism system:

1. self-esteem and self-awareness;
2. participation in decision-making;
3. dignity and respect for others wellbeing;
4. engagement and contribution to the growth of the whole community.

In their article Pelletier, Davidson and Roelandt (2012) argue that recovery and health promotion are one of the most significant elements of preserving community mental health. They state that “recovery is the extent to which individuals can carry out their aims and satisfy their basic needs to evolve and take an active part in their respective communities. This is why communities need to strengthen their positive actions” (pp. 48).

In the authors’ review of the Recovery action strategy of Ottawa center (2012), a healthy citizenship should include:

- Stakeholders have to influence policymakers in building healthy public policies;
- Change in life-style patterns to create supportive environments;
- Strengthen community actions;
- Develop personal skills;
- Reorientate health services.

As studies revealed healthy recovered and empowered communities can make their psycho-social environments safe, more stimulating, more satisfying and enjoyable (Bradstreet & Connor, 2005).

3. Method

The current study aims to analyze the relationship between emotional intelligence subscales as coping mechanisms and Pandemic Stress Symptoms in Albanian students. The design of the current study is a quantitative and correlational methodology. We administered online the Mayer-Salovey-Caruso Emotional model of EI and The Scale of Impact of Stressful Events in the Albanian version for SARS COVID-19 that was priority standardized by the authors in the Albanian context (Ibrahimi et al., 2019).

The reliability of the Mayer-Salovey-Caruso Emotional questionnaire was $\alpha=0.835$ and the reliability for The Scale of Impact of Stressful Events for SARS COVID-19 is $\alpha=0.902$ which facilitated the overall administration and further data processing.

4. Sample

The current study included 300 university students in 5 state universities of Albania: University of Tirana in Tirana, Aleksandër Xhuvani University in Elbasan, Aleksandër Moisu University in Durrës, Luigj Gurakuqi University of Shkodra, Agricultural University of Tirana and Ismail Qemali University of Vlora. The sample was random, ranged between 19-25 years. 189 of the respondents were female (60%) and were 133 male (40%).

5. Instruments

The following instruments were used to conduct this study:

Personal data questionnaire which includes questions related to personal data (e.g. age, course, gender) that helped us mapping an overall social profile of respondents.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) is a test designed to measure the four branches of the Emotional Intelligence model proposed by Mayer and Salovey such as: **Perceiving Emotions** (the ability to perceive emotions in oneself and others), **Facilitating Thoughts** (the ability to generate, use, and feel emotion as necessary to communicate feelings or employ them in other cognitive processes), **Understanding Emotions** (the ability to understand emotional information, to understand how emotions combine and progress through relationship transitions, and to appreciate such emotional meanings) and **Managing Emotions** (the ability to be open to feelings, and to modulate them in oneself and others so as to promote personal understanding and growth) (Consortium for Research on Emotional Intelligence in Organizations, 2021). MSCEIT was developed from an intelligence-testing tradition formed by the emerging scientific understanding of emotions and their function and from the first published ability measure specifically intended to assess emotional intelligence, namely Multifactor Emotional Intelligence Scale (MEIS). It consists of 141 items and takes 30-45 minutes to complete. MSCEIT provides 15 main scores: Total EI score, two Area scores, four Branch scores, and eight Task scores. In addition to these 15 scores, there are three Supplemental scores (Mayer, Salovey & Caruso, 2002). Students were asked to identify emotions of people and objects, to generate an emotion and solve problems through that particular emotion, understand emotions and openness to integrate these emotions with rational thinking (e.g., they were shown with a multichoice question in presumed situation stating that “Jona felt a bit anxious when she thought about all the materials she had to study for the online exam in Human Neuropsychology

during the pandemics. When her professor in the two last days before the exam, decided to add some supplementary chapters, Jona felt _____”.

The Scale of Impact of Stressful Events-Albanian version Revised for SARS COVID-19 is a test that assesses some of the psychological difficulties that people experience after experiencing the COVID-19 Pandemic. This scale has been adapted from the original author's publication Weiss, Charles and Marmar by the Albanian research group in 2019. Questions included physical and psychological changes during the pandemic stress (e.g., *This period makes me feel bad; I have had difficulties with sleep; Stay away from news and data that remind me the pandemics; I behave and act as I was really affected by the virus etc.*) The scale has 21 questions and has been used anonymously with the designed university students through online platforms as Google Forms and Microsoft Forms, after the Informed Consent, in accordance with the Data Privacy Act and upon the approval of the Ethical Committee of the Order of Psychologists in Albania. The instrument was not in itself used as a diagnostic tool of PTSD, but aimed to collect self-reporting data of subjects in a period not later than 2 weeks after the event (infection or potential risk to pandemics) to assess the sources of rehabilitation and future prophylaxis policies for university students. The scale was previously used in a pilot-study of 50 COVID-19 infected people aged 19-26 years old in domestic care. They were asked via mobile phone and their responses were recorded for study purposes. Cronbach alpha for the pilot study was $\alpha=.823$. Overall test standardization for COVID-19 infected and family members for the Albanian context is currently taking place. Scale results for the present article were based on the pilot-study references and were calculated on SPSS version 26.

6. Ethical issues

For conducting the current study with students' subjects, the working group took care of the strict observance of ethical aspects such as:

- **Approved information and allowance of subjects.** Through the platform in which the questionnaires were completed, a detailed description was presented regarding the purpose, conditions and method of the study that would be used, as well as where their assistance consisted. Participants were made aware of the voluntary nature of participating in the study and the possibility of withdrawing from the study if they did not wish to participate.
- **Maintaining the confidentiality and anonymity of subjects** under which subjects were informed about the treatment of personal data of juveniles and that the data collected would be used only for research purposes respecting the principle of anonymity and confidentiality under the European Data Privacy Protection Act.

Descriptive statistics:

After administering the questionnaires, data were analyzed with SPSS v. 26 software. Descriptive parameters were performed through descriptive analysis and frequencies. The student's t-test was used to assess the significant differences between sexes in terms of the level of expression of emotional intelligence. To assess the relationship between emotional intelligence sub-categories and Pandemic Stress Symptoms Spearman's correlation coefficient was performed.

7. Results

Table 1. Descriptive statistics (number and percentage) for gender and class

Gender	Groups	Number
	Female	189
Male	133	
Age	19 y.o.	113
	20 y.o.	119
	21 y.o.	82
	22 y.o.	8

Source: Ibrahim et al., 2020

According to the data showed in the Table 1, 58.69% of the sample taken in the study are female (189) and 41.31% are male (133). Regarding the age criteria, 35.09% of subjects who participated in the study are 19 years old, 36.96% are 20 years old, 25.46% are 21 years old and the smallest part of the sample of 2.5% are 22 years old.

Table 2. Descriptive data on age

	No.	Minimum	Maximum	Mean	Standard Deviation
Age	322	19	22	18.23	.875

Source: Ibrahim et al., 2020.

Based on the data on Table 2, which presents a detailed description about age, it can be referred that the minimum age of the sample is 19 years and the maximum age is 22 years with an average (M=18.23 years, SD=.875). Following is the descriptive data table which includes emotional intelligence along with its respective subcategories.

Table 3. Descriptive data (no, %, mean, standard deviation) for the EI and Academic Performance tool.

EI	Groups	Dimensions	No.	%	Mean	SD	Total
	Good	Weak		125	38.81	116.03	21.13
197				61.19			
		Wellbeing	77	23.91			300
		Self-control	56	17.39			
		Emotion	87	27.02			
		Sociability	102	31.68			

Source: Ibrahim et al., 2020.

In the study analysis the variable of emotional intelligence is presented divided into two categories (good emotional intelligence and weak emotional intelligence) and consists of four dimensions (well-being, self-control, emotionality and sociability). Most of the subjects surveyed,

197 individuals revealed to have a weak emotional intelligence. The rest of them, 125 of students revealed a good EI.

The EI variable has a mean of 116.03 and a standard deviation of 21.13.

Regarding the dimensions of emotional intelligence, from data processing and analysis:

- 38.81% of students show a good EI.
- 61.19% have a weak EI.
- 23.91% of students refer to well-being as the strongest point of the 4 dimensions of EI.
- 17.39% of them have selected the dimension of self-control in the instrument of EI.
- 27.02% of respondents have the most usable dimension of emotionality in EI.
- 31.68% of students have selected sociability as the strongest, best known point in terms of EI.

To understand the correlation of EI and its impact on the Pandemic Stress Symptoms, we used the analysis of significance.

Table 4. Pearson correlation between EI and Pandemic Stress Symptoms

		Pandemic Stress Symptoms	Emotional Intelligence
Pandemic Stress Symptoms	Pearson Correlation		.384**
	Sig. (2-tailed)		.001
	No	300	300
Emotional Intelligence	Pearson Correlation	.384**	1
	Sig. (2-tailed)	.001	
	No.	300	300
Self-Awareness	Pearson Correlation	**-.765	
	Sig. (2-tailed)	.001	
	No	300	300
Empathy	Pearson Correlation	-.875	
	Sig. (2-tailed)	.001	
	No	300	300
Sociability	Pearson Correlation	-.456	.001
	Sig. (2-tailed)		
	No	300	300

Source: Ibrahim et al., 2020.

Table 4 shows the Pearson Correlation between emotional intelligence sub-categories and Pandemic Stress Symptoms. As it can be inferred by the table, when Pandemic Stress Symptoms grow, the possibility for students to use more of their emotional intelligence coping mechanisms also increase. Pearson correlations show an inverse correlation between pandemic stress symptoms and self-awareness ($r=-.765$, $p<0.01$), an inverse relation between pandemic stress symptoms and empathy ($r=-.875$, $p<0.01$) and a moderate inverse relation between pandemic stress symptoms and social skills ($r=-.456$, $p<0.01$). In other words, if the score of Pandemic Stress Symptoms increases, the ability of the students to use more EI coping mechanisms for facing them also increases. If the score of pandemic stress symptoms increases, self-awareness, empathy and sociability decrease.

Given that the value of Sig. (2 tailed) is $p=0.01<0.05$, then we might conclude that the relationship between the variables being analyzed (Self-awareness, Empathy, Sociability and Pandemic Stress Symptoms) is negative and strong ($r=-.765$; $r=-.875$; $r=-.456$). The more severe the symptoms of Pandemic Stress, the lower healthy coping mechanisms in students and the lower their overall EI functionality.

Table 5. T-test of differences of means for EI related to gender and Pandemic Stress

	Gender	No	Mean	SD	T	p
Emotional Intelligence	Female	189	122.82	6.84	2.671	.002
	Male	133	109.67	7.21		
Pandemic Stress Symptoms	Female	189	8.43	4.43	2.863	.004
	Male	133	6.71	3.42		

Source: Ibrahim et al., 2020.

To understand if we have significant differences between the sexes in terms of the level of expression of emotional intelligence in students we used the t-test. From Table 5, it can be inferred that emotional intelligence ($t=2.671$) has a statistically significant differences between the sexes as the value of ($M=.002$). The result shows that emotional intelligence is higher in female subjects with the mean ($M=122.82$, $SD=.6.84$) compared to male subjects with the mean ($M=109.67$, $SD=.7.21$). To find out if there were any differences between both sexes in terms of pandemic stress symptoms manifestation, we again used the t-test. Pandemic stress symptoms ($t=2.863$) show a statistically significant difference between the sexes since the value of $p<0.05$, is higher in female subjects with the mean ($M=8.43$, $SD=.4.43$) compared to male subjects with the mean ($M=6.71$, $SD=.3.42$). Therefore, women are more prone to use EI coping mechanism components in dealing with Pandemic Stress Symptoms than men.

8. Conclusion

The current study aimed to explore the impact of emotional intelligence on pandemic stress symptoms in Albanian University students aged 19-25 years. Through the administration of Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and The Scale of Impact of Stressful Events-Albanian Version for measuring emotional intelligence and its elements (self-awareness, empathy, social-skills), it became possible to collect data and draw results. As it can be inferred by the table, when Pandemic Stress Symptoms grow, the possibility for students to use more of their emotional intelligence coping mechanisms decrease.

Inverse correlations between pandemic stress symptoms and self-awareness ($r = -.765$, $p < 0.01$), pandemic stress symptoms and empathy ($r = -.875$, $p < 0.01$) and between pandemic stress symptoms and social skills ($r = -.456$, $p < 0.01$) suggest that the ability for the individual to use any of healthy EI components to cope with the persistence of Pandemic Stress Symptoms decreases and therefore the capacity to gain from his inner coping resources fail in front of continuous stressors (Dassein-trauma). Female subjects showed a higher level of using Pandemic Stress coping mechanisms compared to male subjects. These results are also supported by the research of Fernández-Berrocal, Cabello, Castilo and Extremera (2012) who in a meta-analytic view found of different articles the psychogenesis of women in being more “educated toward emotions, spend more time with the social world and maintain a positive tone of their and others emotions in order to prevent the deterioration of interpersonal relations and to construct satisfying social networks” give them a better chance to use EI as a learnt coping mechanism (Berrocal-Fernandez et al., 2012 reviewed articles of Brody & Hall, 1999; Hall, 1978; Sánchez, Berrocal-Fernández, Montañés & Latorre, 2008; Candela, Barberá, Ramos & Sarrió, 2001). Mental health promotion should also view emotional intelligence as an ingredient of empowerment that facilitates community and citizenship recovery from significant stressful events such as the SARS COVID-19 pandemics. Further research should be done to deeply understand these dynamics. Mental health professionals, governmental health structures and NGOs should take real policies in giving emotional intelligence elements and competences as a training program and psychoeducation for Personal and Community Empowerment in students. Such a systemic adjustment to terms of psychological and community wellbeing will help students grow their personal Self-confidence and use healthy coping schema of EI and empowerment to cope with the SARS COVID-19 Pandemic Stress Symptoms (Bandura, 2000).

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Evaluating the Impact of Alcohol Abstinence on the Cognitive Functioning of Adults Diagnosed with Alcohol Use Disorder

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Abstract

Research supports the relation between chronic alcohol use and progressive cognitive impairment but alcohol rehabilitation facilities mainly focus on psycho-social factors with limited emphasis on cognitive impairment and recovery. This study evaluated the impact of alcohol abstinence on cognitive functioning; specifically, visuospatial attention, working memory and abstract reasoning on two different occasions using the WAIS-IVSA battery. A pre-test–post-test design was used to assess patients diagnosed with Alcohol Use Disorder (AUD). Differences in cognitive functioning from phase 1 (3-4 days after admission) and phase 2 (14 days after phase 1) were measured. A paired samples t-test was conducted using SPSS version 27. A statistically significant increase in AUD patients' visuospatial scores was found when comparing phase 1 and 2 ($M=7.11$, $SD=2.07$), $t(8)=3.42$, $p=.009$. No statistically significant differences were observed for working memory and abstract reasoning. We conclude that the findings can be used to guide, and improve the development of future intervention programs to emphasize the value of cognitive recovery.

Keywords: abstract reasoning, alcohol abstinence, alcohol use disorder, visuospatial attention, working memory.

1. Introduction

The World Health Organization recognises alcoholism as a chronic progressive disease (WHO, 2021) and Alcohol use disorder (AUD) is characterised by an intense desire to consume alcohol and, where attempts to limit or control the use of alcohol, has been unsuccessful. Le Berre et al. (2017) explain that alcoholism is a "...complex, multidimensional, multidetermined disorder" (p.1432). As a result, the structural and functional influence of alcohol abuse on the brain can be mediated by several factors (Velayudhan & Saraswathy, 2020). Neuropsychological profiles related to alcoholism vary due to the diverse origin of alcoholism and its outcomes which are influenced by family history, mental and physical health, gender and age (Oscar-Berman et al., 2014; Velayudhan & Saraswathy, 2020). The period of alcohol use, and frequency of intake, can also impact different brain regions and functioning, differently. Similarly, alternating periods of withdrawal, abstinence, and relapse also contribute complications (Le Berre et al., 2017).

- The same group of patients was assessed on two different occasions: A baseline assessment and a post-test assessment. The degree of impairment and recovery was thus observed amongst the same AUD sample.
- The findings have practical and theoretical value. It contributes to the knowledge base regarding the impact of alcohol abuse on cognitive functioning:
 - The study emphasises the significance of measuring cognitive functioning and the importance of determining AUD patients' level of cognition.
 - Practically the study offers valuable information that may be used to guide future interventions specifically aimed at improving alcohol-related cognitive impairment.
 - Cognitive evaluation is important for both the assessment and treatment of AUD patients.
- AUD patients need cognitive support post-rehabilitation to minimize relapse.

Alcohol abuse results in several health-compromising consequences, leading to early mortality and numerous chronic health conditions (Brennan et al., 2020; Devere, 2016). It is linked to various neurophysiological and cognitive alterations, including; the ability to learn, memory difficulties, diminished decision-making and challenges with motor skills (Ahmadi et al., 2013; Fein et al., 2006; Ioime et al., 2018; Kopera et al., 2012; Velayudhan & Saraswathy, 2020). In conjunction, patients may also present with psychological symptoms like anxiety and depression (Erdozain et al., 2014; Woods et al., 2016). Despite awareness of the negative physical, psychological, occupational, or social consequences experienced, patients continue to abuse alcohol. To enable recovering alcoholics to maintain abstinence effective cognitive functioning is needed (Le Berre et al., 2017).

Several studies suggest that chronic alcohol use is linked to progressive cognitive impairment (Banerjee, 2014; Bates et al., 2013; Bernadin et al., 2014; Erdozain et al., 2014; Mocaiber et al., 2011). The severity of cognitive impairment, however, varies and several factors impact the extent of damage (Batman, 2015; Le Berre et al., 2017). Impairment stemming from AUD is especially prominent in higher-order cognitive functions, such as abstract reasoning, visuospatial processing and problem-solving (Bagga et al., 2014; Kopera et al., 2012). AUD is not only characterised by a lack of self-control but also relates to deficits in cognitive control, which is needed for goal-directed behaviour (Breukelaar et al., 2017; Molnar et al., 2018). Ioime et al. (2018) emphasise the value of the “cognitive emotional-affective” domain and the adverse impact of alcohol use on this neural mechanism (p. 505). Cognitive impairment can impact the extent to which AUD patients manage their addiction and related emotions, and increase the possibility of relapse. Adequate cognitive functioning and control are thus considered a prerequisite for effective psychological treatment (Ioime et al., 2018). The specific cognitive functions vulnerable to damage due to alcohol abuse and how abstinence may contribute to cognitive recovery, is, however, still unclear (Stavro et al., 2013).

Research supports the notion that cognitive recovery is possible after a period of abstinence (Fein et al., 2006) with several cognitive domains returning to normal. There is, however, evidence of the contrary in that certain cognitive impairments persist even after long periods of abstinence (Ioime et al., 2018; Velayudhan & Saraswathy, 2020). A review by Oscar-Berman et al. (2014) found that abstaining from alcohol, after a period of abuse, shows that the brain appears to re-organise itself to offer compensation for structural and behavioural impairment. Similar findings were reported by Fein et al. (2006) and Zehra et al. (2019). Given that disagreement is still evident, more research can be valuable to understand the neurocognitive recovery associated with abstinence (Brennan et al., 2020; Fein et al., 2006). The validity of findings is often questioned based on several factors, including the measures used, the timing of assessment, the sample included and the period of abstinence. The degree to which cognitive functions recover is thus not yet well conceptualised.

Ioime et al. (2018) highlighted that research supports the detrimental effects of alcohol abuse on cognition, but the nature of the impact on specific brain regions or the global impact is still deliberated. Following this, the influence of continued abstinence and the nature of cognitive recovery also remains unclear. Assessing the cognitive functioning of AUD patients is imperative, not only to determine the level of impairment but also to ascertain those patients have the ability to benefit from psychosocial treatment. The importance of assessing cognition, and including interventions to improve cognitive functioning is needed as "...cognitive impairment reduces the effectiveness of psychological treatments" (Ioime et al., 2018: 505). Steps thus need to be included to improve cognitive functioning and the value of abstinence in strengthening these functions need to be explored. Improving our understanding of AUD cognitive related decline is valuable for both public health and the understanding of addiction (Ahmadi et al., 2013).

Evidence of improvement in dysfunction, caused by alcohol abuse, during recovery suggests that the brain is capable of restructuring (Velayudhan & Saraswathy, 2020). Recovery of diverse cognitive functions is dependent on the nature of the dysfunction as some functions improve after a short period of abstinence but others may require longer periods of recovery. Certain cognitive functions may also persist despite long periods of sobriety (Fein et al., 2006; Ioime et al., 2018). A focus on the change of specific cognitive functions on the same sample of AUD patients from baseline is needed to obtain a more comprehensive understanding of the extent of cognitive damage as well as the level of improvement after recovery.

The primary neuropsychological domains assessed in people with AUD have been memory, executive functions emotion, psychosocial skills, visuospatial cognition, and psychomotor abilities (Oscar-Berman et al., 2014). Given the diverse implications of alcohol use on cognitive functioning and the lack of consensus regarding the nature of recovery, the current study focused on the impact of abstinence, as part of a rehabilitation programme, on three prominent cognitive functions, namely; visuospatial attention (VA); abstract reasoning (AR), and working memory (WM).

VA involves the selection of information in relation to where stimuli are in space (Zirnsak & Moore, 2015). It is an adaptive mechanism that enables people to follow set goals while reacting to and processing stimuli in the surrounding environment (Doruk et al., 2018). VA has important practical implications in relation to driving ability, for example (Buddy, 2020). Evidence shows that chronic alcohol use does not impair all brain regions involved in selective attention equally (Buddy, 2020; do Canto-Pereira et al., 2007; Kopera et al., 2012). Fein et al. (2006) found that spatial processing is one of the main cognitive functions weakened by alcohol abuse. Even after periods of abstaining from alcohol, dysfunction related to visuospatial abilities persists (Buddy, 2020).

Zehra et al. (2019) emphasised the limited understanding of the impact of alcohol use on attention. In their study, 19 newly abstinent patients diagnosed with AUD and 23 healthy controls were assessed on a VA task using fMRI. No behavioural differences were found between the groups, but the results indicated decreased activation in VA brain regions in the AUD patients compared to controls. Similarly, a study by do Canto-Pereira et al. (2007) found that acute alcohol intoxication impairs the ability to disengage attention from a gaze point (do Canto-Pereira et al., 2007). Likewise, Ioime et al. (2018) found that the VA abilities in alcoholic dependent participants demonstrate a slower recovery rate as their sample continued to display problems with VA tasks despite several weeks of recovery. Further exploration about the impact of alcohol use and abstinence on VA is reasonable to elucidate the nature of this cognitive function in relation to recovery.

AR is another prominent cognitive domain impaired by alcoholism and refers to the ability to readily identify patterns, logical rules and trends in stimuli followed by integration and application to solve problems (Astorga, 2013). Bagga et al. (2014) used fMRI scans to study the

neuropsychological basis of poor AR abilities in alcohol-dependent participants. The results showed that alcohol-dependent participants used additional brain areas to execute behavioural tasks in comparison to controls. There was no significant difference in the response accuracy between the groups, but the findings suggest that for alcohol-dependent participants, more effort and activation of additional brain areas are needed to complete tasks. Buddy (2020) echoed these findings emphasising that alcoholics rely on more complex higher-order functions to aid them in task performance.

In conjunction with AR, and VA, WM also plays a major role in goal-directed behaviour. This memory system enables the retention and manipulation of information (Chai et al., 2018; Cowan, 2014; Deshpande, 2015), necessary for successful task completion. Various studies have indicated that WM is one of the key components impaired by alcohol (Deshpande, 2015; Velayudhan & Saraswathy, 2020). Results from a study by Saults et al. (2007), indicated that WM abilities, specifically auditory and visual arrangements, are impaired by prolonged alcohol abuse. Kopera et al. (2012) found similar results and maintained that WM is impaired in short-term abstinent alcoholics. Lechner et al. (2015) assessed the relationship between drinking behaviour and the consequent changes in WM. It was reported that a person who starts drinking with the intention to stop or to avoid risks associated with uncontrolled drinking would partly rely on WM to achieve this. This emphasises the significance of WM in controlling alcohol-related behaviours. Kopera et al. (2012) argue in agreement that WM impairment may impact subsequent decision-making and this can have implications for relapse. WM dysfunction, together with certain personality features, leads to a higher risk of alcohol abuse (Kopera et al., 2012). Findings support the notion that WM requires longer periods of abstinence to show marked improvement in alcoholic-dependent patients (Velayudhan & Saraswathy, 2020). A comparison of cognitive functions of abstaining alcohol-dependent male patients and healthy controls indicated that patients who were sober for less than a year, made more errors in both attentional shifting and WM assessments than healthy controls and patients with longer periods of abstinence (Kopera et al., 2012). The rate and extent to which cognitive functions improve after recovery thus remain with unanswered questions.

Le Berre et al. (2017) describe recovery as regaining the level of cognition before alcohol abuse. Despite evidence on the different recovery levels of selective cognitive processes, some cognitive domains remain impaired even with prolonged abstinence (Le Berre, et al., 2017). While evidence indicates that recovery is possible with prolonged abstinence, some people struggle to remain abstinent which may hinder optimal recovery from AUD. Research on repeated withdrawal from alcohol shows that it adversely impacts the recovery of cognitive functions (Le Berre et al., 2017; Loeber et al., 2010). This suggests that recurrent periods of withdrawal may be hazardous for maintaining cognitive impairment and weaken the prospect of cognitive recovery (Loeber et al., 2010). Most patients diagnosed with AUD find it challenging to remain abstinent after discharge from rehabilitation centres. The prospect of recovery is mediated by adequate cognitive skills, emotional capacity, sufficient perception, and support to allow AUD patients to understand and apply the skills needed to abstain from alcohol use and to maintain it (Le Berre et al., 2017). Abstinence is easier to maintain when the patients are in a controlled environment, but they face more challenges once control necessitates autonomous motivation.

Recovery is associated with different levels of abstinence and includes various factors. Accordingly, it is argued that interventions for the rehabilitation of alcohol dependence cannot be one dimensional. Several disciplines must be involved to enable the effective management and treatment of AUD. A multidimensional approach is thus needed. In clinical practice, however, there is an exclusive focus on managing the social and psychological factors related to alcohol use. Alcohol-related cognitive impairments are underestimated, despite the benefits it holds in treating AUD patients. Cognitive impairment may maintain the problem of addiction because several cognitive functions, needed for recovery, are weakened which promotes issues of addictive

behaviours (Ioime et al., 2018; Stavro et al., 2013). Neglecting the cognitive functioning of AUD patients can then hamper their ability to abstain from alcohol (Cabé et al., 2016).

Research on how alcohol abuse impacts specific cognitive domains and the extent to which abstinence can contribute to the recovery of these domains is needed. Given the importance of cognitive functioning, and the limited focus on cognitive recovery in the same AUD sample, the current study assessed the impact of alcohol abstinence on specific cognitive functions in a single group of AUD patients. The aim was to determine the extent to which certain cognitive functions recover after a period of abstinence as part of a rehabilitation programme. Recovery in the current study context includes any level of significant improvement from initial assessment to post-test assessment.

2. Method

2.1 Participants

A quantitative research approach including a pre-test-post-test design was used. The patients were sampled from a local treatment facility and had a formal diagnosis of AUD. The sample included 9 patients who completed the same battery of assessments on two different occasions. The following criteria guided the selection of the sample: English speaking; 18+; formally diagnosed with AUD. Exclusion criteria included being underage (<18 years old); presenting with a history of head injuries; current or past untreated neurological disorders; and any current abuse or dependence towards other substances, including psychotropic medication. Table 1 provides a summary of the demographic information of the sample.

Table 1. Demographic information

Gender	[N]
Male	5
Female	4
Race	[N]
White	8
Coloured	1
Educational background	[N]
Grade 12 / Senior Certificate	7
College Certificate / Diploma	2

2.2 Instruments

A demographic questionnaire and the WAIS-IV^{SA} was administered to patients by a registered psychometrist. The WAIS-IV^{SA} provides advanced measures of cognitive ability and is a comprehensive measure used to assess adult intelligence suited for a South African population (JVR Africa Group, 2019). Only limited sections of the assessment were used based on the instruction from the treating psychologist. It was advised that the comprehensive WAIS-IV^{SA} would not be suitable for the AUD patients due to the duration needed to complete all the tests included in the WAIS battery. As the patients were included in a rehabilitation programme, only the following assessments from the WAIS-IV^{SA} were administered:

- Visuospatial attention: Block design
- Abstract reasoning: Matrix reasoning
- Working memory: Arithmetic

2.3 Procedure

Each participant signed an informed consent form before data collection commenced. A psychologist was present during the assessment. The WAIS-IV^{SA} was used during both phase 1 and 2 to assess the VA, AR, and WM functioning of AUD patients. During data collection, each patient manually completed the assessments in a designated room located at the treatment facility. Only one patient was assessed at a time and the average time of completion per participant was approximately 30 minutes. The pre-assessment constituted the baseline measure before the treatment, including the abstinence component, and was administered 3-4 days after admission. The reasoning was that patients needed to detox first before assessments could commence. The post-test measurement was conducted 14 days later, a few days before discharge.

3. Results

Patients' cognitive assessment scores from phase 1 and phase 2 was calculated using SPSS version 27. The descriptive results are discussed to provide an overview of changes from phase 1 to phase 2. The results from the paired samples *t*-test detail the significance of the differences revealed before and after abstinence.

3.1 Visuospatial attention: Phase 1 And Phase 2

The maximum allowable score for the Block Design test is 66. Patients' scores ranged between 24 and 40 ($M=32.30$, $SD=7.26$) for Phase 1, baseline assessment. The standard error of the mean (SEM) was 2.3 and margin of error was 32.3 ± 4.499 ($\pm 13.93\%$) at 95% CI. The patient group had completion times between 7 and 14 minutes against a maximum allowable completion time of 16 minutes and 30 seconds ($M=8.67$, $SD=1.50$) at 95% CI and the margin of error was 8.6667 ± 0.98 ($\pm 11.31\%$) with a SEM of .50.

The second phase results show that the patients' scores, on average, increased ($M=36.67$, $SD=6.98$). The SEM is 2.33 and the margin of error at 95% CI is 37.6667 ± 4.562 ($\pm 12.11\%$). The average completion time was ($M=8.78$, $SD=2.64$). The SEM is 0.88 and at 95% confidence interval the margin of error is 8.7778 ± 1.722 ($\pm 19.61\%$). The significance of the difference is based on subsequent *t*-test analysis.

3.2 Abstract reasoning: Phase 1 And Phase 2

The lowest score was 7, and the highest was 15. Patients scored on average ($M = 10.89$, $SD = 3.14$). The SEM is 1.28 and the margin of error is 10.8889 ± 2.052 ($\pm 18.84\%$) at 95% CI. The completion times ranged between 3 and 11 minutes ($M = 6.00$, $SD = 3.08$). The standard deviation shows that the time taken to complete the tasks were widely dispersed with a range of 8. The SEM is 1.03 with a margin of error of 6 ± 2.014 ($\pm 33.56\%$) at 95% CI.

During phase 2, the highest score was 19, and the lowest was 7 with an average performance of ($M = 11.67$, $SD = 3.84$). The SEM is 1.28 giving a margin of error of 11.6667 ± 2.509 ($\pm 21.51\%$) at 95% CI. The average completion time was also faster compared to phase 1 ($M = 5.44$, $SD = 2.07$). The SEM is 0.69 with a margin of error of 5.4444 ± 1.351 ($\pm 24.82\%$) at 95% CI.

3.3 Working memory: Phase 1 and Phase 2

For WM assessment during phase 1, the lowest score against a possible total of 22 was 7, with the highest being 13, with an average performance of ($M=10.44$, $SD=2.13$). At 95% CI and

a SEM of 0.71 the margin of error is 10.4444 ± 1.39 ($\pm 13.31\%$). The completion time for phase 1 ranged between 3 and 12 minutes with an average completion time ($M=7.44$, $SD=2.88$). The SEM is 0.96 giving a margin of error of 7.4444 ± 1.88 ($\pm 25.25\%$) at 95% CI.

During phase 2, the lowest score was 10 and the highest was 15. Patients' average performance increased during phase 2 ($M=11.56$, $SD=1.59$). The SEM is 0.53 and the margin of error at 95% CI is 37.6667 ± 4.562 ($\pm 12.11\%$). The average completion time during phase 2 was also slightly faster compared to phase 1 ($M=6.33$, $SD=2.35$). The SEM is 0.78 and the margin of error is 6.3333 ± 1.532 ($\pm 24.19\%$) at 95% CI.

3.4 Within-subject analysis

There was a statistically significant difference in the VA scores of patients when comparing phase 1 and 2 ($M=7.11$, $SD=2.07$), $t(8) = 3.42$, $p=.009$. This means that after the period of abstinence, the patients' VA scores improved. The mean increase in the VA scores was 7.11 with a 95% CI ranging from -4.7918 to 4.7918 . The eta squared statistic ($\eta^2=1.14$) indicated a large effect size (Pallant, 2016). Cohen's guideline was used to interpret the observed effect sizes. The general guidelines for Cohen's d are small= 0.20 , medium= 0.50 , and large= 0.80 (Cohen, 1992; Pallant, 2016). This indicates that the magnitude of the difference is large. It is acknowledged that the interval is wide and contains 0 indicating a poor estimate of the population value. This means that it is possible that no significant difference will be found should the same study be repeated. The significant difference within the current study parameters should thus be interpreted with caution.

There was no significant difference in patients' AR scores when comparing phase 1 and 2 ($M=0.77$, $SD= 1.29$), $t(8)=.59$, $p=.566$. This means that after the period of abstinence, the patients' scores did not significantly improve. The eta squared statistic ($\eta^2=0.2$) indicated a small effect size (Cohen, 1992).

No significant difference in the WM scores of patients were observed when comparing phase 1 and 2 ($M=1.11$, $SD=.67$), $t(8)=1.64$, $p=.138$. After a short period of abstinence, the patients' WM abilities did not seem to improve. The eta squared statistic ($\eta^2=0.55$) indicated a medium effect size (Cohen, 1992).

4. Discussion

Research has demonstrated varying degrees of impairment in prominent cognitive functions due to alcohol abuse. The extent to which this impairment improves after a period of abstinence is not yet clear. Alcoholism is described as a multifaceted dynamic disorder (Le Berre et al., 2017) that includes periods of abstinence and relapse. Extensive research has demonstrated that alcohol abuse diminishes important cognitive functions (Ahmadi et al., 2013; Bruijnen et al., 2021; Devere, 2016; Fein et al., 2006; Le Berre et al., 2017; Stavro et al., 2013; Zehra et al., 2019). Velayudhan and Saraswathy (2020) emphasise the value of understanding how cognitive functions, amongst alcoholic dependent patients, change within different phases of treatment. This may enhance the understanding of the functions that improve with shorter periods of abstinence compared to those functions that continue to demonstrate deficits. Findings suggest that VA abilities are particularly vulnerable to alcohol abuse (Fein et al., 2006; Ioime et al., 2018; Mocaiber et al., 2011; Stavro et al., 2013). Similarly, AR abilities also show deterioration in relation to alcohol use (Velayudhan & Saraswathy, 2020). Cognitive functioning may recover after a prolonged period of abstinence, ranging from six months to one year, given that there was no relapse (Ioime et al., 2018; Le Berre et al., 2017; Velayudhan & Saraswathy, 2020). The

improvement of cognitive performance after alcohol abuse demonstrates the plasticity of the brain in that neural structures are capable of repair.

Some cognitive functions may show improvement within a few weeks, while others may require longer periods of recovery. WM ability, for example, show long-term deficits. Velayudhan and Saraswathy (2020) maintain that the harm caused by alcohol abuse may be irreversible in relation to WM. Deshpande (2015) and Fein et al. (2006) agree that WM abilities are significantly compromised by alcohol abuse.

Ioime et al. (2018) explained that few studies examine the same sample of alcohol impaired participants to explore changes over time. The current study observed the same group of AUD patients on two different occasions. The baseline assessment was conducted a few days after admission giving patients time to detox as they often arrive intoxicated at the rehabilitation facility. The post-test measure was completed 14 days later, a few days before discharge. The findings revealed significant improvement in the VA abilities of the patients when phase 1 and phase 2 was compared. Patients also completed the VA tasks faster during phase 2. The small sample size in conjunction with the short period of abstinence limits the extent to which conclusive arguments can be made. The findings contradict previous research on VA, where Zehra et al. (2019) for example, found no behavioural differences with regard to VA when compared with healthy controls. Their findings did, however, support lower activation of brain regions associated with attention as evidenced by fMRI scans. The findings from Fein et al. (2006) are comparable to Zehra et al. (2019) and show that despite long-term periods of sobriety, deficits in spatial processing persist. Similar to the current study, the results from several other studies showed improvement in the attentional processes and executive functions of the patients (Cabé, et al., 2016; Fein, et al., 1990; Fein & Cardenas, 2015; Kopera et al., 2012; Pelletier, et al., 2016). Ioime et al. (2018) explored the longitudinal effect of abstinence and the findings showed that most cognitive functions improved with longer periods of sobriety (i.e., six months to one year), however, VA abilities did not improve and may only recover after more than one year of abstinence.

The impact of alcohol abuse is also apparent in the WM and AR ability with AUD patients presenting with marked difficulty in memory and problem-solving abilities. In this study, no significant differences were found in the WM abilities or AR abilities of patients when phase 1 and phase 2 data was compared. Kopera et al. (2012) echoed these results maintaining that alcohol dependent participants presented with lower WM capacity in comparison to healthy controls. WM is an essential part of decision-making and deficits may impair AUD patients' ability to effectively manage and control their drinking, increasing the prospect of relapse (Kopera et al., 2012; Le Berre et al., 2017). Diminished cognitive functioning, concerning AR, also suggest that problem drinking may persist due to inadequate skills regarding problem-solving. Ioime et al. (2018) argued that impaired executive functions mean that alcohol dependent participants are unable to learn by negative experiences thereby maintaining their addiction. The diverse nature of AUD and the impact on cognition means that some cognitive functions may improve with short periods of abstinence, while others like WM, need substantial time to improve (Velayudhan & Saraswathy, 2020). Deshpande (2015) explains that WM may be permanently impaired in some cases of alcohol abuse. The length of alcohol abuse and abstinence ultimately predicts the extent of impairment and the potential recovery of cognitive deficits. The short period of abstinence in the current study may have limited the extent to which recovery of WM and AR abilities could be observed. Similar to previous findings, these cognitive domains may require longer periods of abstinence to show marked improvements.

4.1 Practical implications

The findings hold both theoretical and practical value. Theoretically, the findings contribute to improving the understanding of several cognitive functions and the degree of impairment and recovery, following a short period of abstinence. Practically, the findings emphasise the need for interventions to consider the importance of cognition, both in assessment and treatment of AUD patients. The significance of cognitive functioning is grounded in the mediating role it plays in preventing relapse (Velayudhan & Saraswathy, 2020). Ahmadi et al. (2013) also emphasise the significance of AUD research that enhances our understanding of the psychological and neurological aspects valuable to both public health and addiction disorders. Le Berre et al. (2017) echoed this by describing the multidimensional nature of alcoholism and its effects. The ability to recover from AUD and relapse prevention, is dependent on sound cognitive functioning. Patients need to be able to cope with stressful demands and be able to achieve long-term sobriety. The ability to stop drinking, and to maintain this change requires multiple neurological functions, social cognition, emotional support and adequate cognitive control (Le Berre et al. 2017). Enhanced understanding of cognition is necessary to improve cognitive behavioural therapy (CBT) approaches, thereby aiding behavioural change.

There has been debates about the level of cognitive improvement amongst alcohol-dependent patients. This study makes a valuable contribution by adding to the body of knowledge on how cognitive functions change within the same sample of AUD patients based on a short period of abstinence. The findings also provide support for the value of assessing cognitive functions and including a treatment focused on recovering cognitive functions as part rehabilitation programmes. This will not only improve patients' cognitive abilities but can also help patients prevent or minimise relapse and empower them to maintain sobriety.

5. Conclusion

In conclusion, cognitive impairment compromises the success of psychosocial treatment and identifying cognitive deficits is essential with regard to rehabilitation (Ioime et al., 2018; Kopera et al. 2012). The importance of cognitive assessment in AUD patients is thus valuable for both clinical and practical application. Insufficient levels of cognitive functioning can impede AUD patients' prospects of recovery and increase the likelihood of relapse.

Cognitive assessment and rehabilitation approaches should thus be included in the treatment programmes of AUD patients. No significant differences were observed in the WM and AR abilities of the current AUD patient sample. Significant improvement was found in the VA functioning of the patients, although the small sample size and study limitations cautions against any definitive conclusions. The findings provide support for the value of abstinence in cognitive recovery and the significance of incorporating cognitive rehabilitation in intervention strategies (Devere, 2016). A multi-disciplinary approach that deals with psycho-affective, behavioural, and cognitive consequences, is thus needed when treating AUD.

5.1 Limitations and future directions

The present study included a restricted number of AUD patients. The small sample size limits the extent to which conclusive arguments can be made. The period of abstinence was short, constituting 14 days of abstinence. Factors that are known to impact alcohol use like, age; period of alcohol abuse; and frequency of relapse, were not considered in the current investigation. COVID-19 regulations prevented the inclusion of a third assessment. Future studies should include a larger sample of AUD patients and assess cognitive impairment and improvement across several periods of recovery. It is suggested that longer periods of abstinence are needed to show

improvement in prominent cognitive functions. It is also recommended that factors related to period of alcohol use, frequency and quantity also be taken into consideration.

5.2 Ethical consideration

The Faculty of Humanities Research Ethics Committee at the University of Pretoria granted ethical approval for the study. All participants received an information sheet including the purpose of the study. The research procedure was adequately communicated and data collection was done by a registered psychometrist. Informed consent was obtained by all participants before data collection commenced. Voluntary participation was emphasised and participants had the right to withdraw from the study without any negative consequences. Confidentiality was ensured as no personal information was connected to the data. The procedures performed in this study were based on the ethical standards provided by the Faculty of Humanities Research Ethics Committee.

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Me and My Parents: A Qualitative Study of the Role of Birth Order Child in Family

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Abstract

Birth order is one of the most extensive human experiences and is considered to determine how smart, good, responsible, sociable, emotionally stable, and open to new experiences. Therefore, parents assume the birth orderly child is always reliable and can open the way to help his younger siblings later which makes his role very necessary in the family. This study aims to analyze how the role of the birth orderly child in the family is to find the initial process of the birth orderly child to reach his role in the family. Using the Interpretative Phenomenological Analysis (IPA) data analysis technique, this study involved 5 study participants with criteria for children in the first birth order. The results show that with the duties and responsibilities that were carried out early on, the recognition of roles and goals in achieving the well-being of the family made the birth orderly child able to proceed and make himself a role in the scope of the family.

Keywords: birth orderly child, family, birth order, role in the family.

1. Introduction

A family is a unit consisting of two or more people who are united by marriage, blood, adoption, or consensual union. In general, consulting with one household, interacting and communicating with each other and therefore the family is considered as an integrated and functional community unit. Within the family itself, it is important to know the role that can be development, behavior, and welfare of individuals within the scope. UNESCO states that the family is a kinship unit and even when its members do not share ordinary households, the unit can exist as a social reality (Sooryamoorthy, 2012; Sonawat, 2001; UNESCO, 1992; Sharma, 2013).

The family is also the first and smallest social unit for a child. Before they get acquainted with the world around them, a child will get acquainted with the family situation first. (Taubah, 2015). The family is the closest environment to each individual, especially for a child. The knowledge, understanding, and interaction that they get first to come from the family environment, especially mothers, a mother in educating children has their examples, namely, a mother must have a role model that can be exemplified in her life and form norms of values and creeds (Gade, 2012). While both the environment can affect a child's development is the school environment, and the third is the community environment.

Haan (2010) shows that parents spend their financial resources for children's education. Children are the future of the family and the hidden treasure for both parents. When they are born, they are welcomed into the family and when they grow up they learn different things

from their parents. Children are the most beautiful gifts that God entrusts to both parents. Almost every parent wants to be blessed with a baby in his family. A child naturally wants to get affection from his parents and every parent always tries as hard as possible for his favorite child to have a bright future. Surely all parents want their favorite children to always be the best in their lives.

Responsibility is natural, which means that responsibility has become part of human life that every human being, and certainly each person will assume responsibility of their own (Rochmah, 2016). A child's role doesn't just end at school. Apart from the role of children to learn in school, it is necessary to train to be responsible by giving them roles at home. Children are important contributors to a family. Parents are the only ones who can train their children to understand their responsibilities in life. Responsibility is human awareness of behavior or actions both intentional and unintentional. Responsibility also means acting as an expression of awareness of the obligations that are manifested in daily behavior.

Some studies have proved that the birth orderly has many advantages including the birth orderly child to have more achievements and better achievement in the school. The birth orderly child is also believed to be more likely to occupy the office at the workplace (Black, 2017; Lehmann, Nuevo-Chiquero & Vidal-Fernandez, 2013). When having the birth orderly child, the parents are too anxious about everything. So, they tend to give a lot of prohibition on children because they worry about safety and prosperity. In the second child onwards, the parents will be more relaxed in applying the rules. They know what rules are effective and ineffective, and their impact on children. Based on the experience they had had parents no longer worried about everything because they had already been a parent before. Often, the birth orderly child cannot be free to live his life, because it is fulfilled by parental expectations. When parents are not home, the oldest or birth orderly child turns the role into "the head of the family" for a while. Immediately the birth orderly child is considered and must assume responsibilities such as adults who can overcome all problems, should be able to maintain the state of the House in the rules that have been defined by parents. Keeping siblings, cleaning houses, and other household activities are often part of the responsibility of the birth orderly child.

The birth orderly children have benefited by a non-cognitive dimension that captures emotional stability, persistence, social openness, a willingness to assume responsibility as well as the ability to take initiative, based on this very strong conclusion by incorporating the family's fixed effect (Black, 2017). The birth orderly child is always filled with parental expectations of the beautiful thing, therefore, unknowingly emphasizing that the birth orderly child should always be perfect. Because the perfection of the birth orderly child is proven success of parenthood. The birth orderly child becomes the object of a variety of parenting methods that parents learn, when his brother is born, the parents no longer struggle to apply this. And let the younger brother do as his origin is still within a reasonable limit. The birth orderly child is sometimes a hero for his brother. Although parents taught the birth orderly child to always defend his sister, they sometimes did so without being asked. Schwär and Mahony (2014) explains that there is no clear and definite relationship between social skills and birth sequences.

Hotz and Pantano (2011) explained that firstborn children tend to have higher IQ than children born afterward. But Bleske-Rechek et al. (2014) expose that there is no effect of birth sequence on academic and personality achievements. As Lehmann, Nuevo-Chiquero and Vidal-Fernandez (2014) explains the existence of a negative relationship between birth sequence and educational achievement is a major change in parenting style, especially by respecting the ability of parents to encourage early cognitive development. The significant variation by the elderly during pregnancy and in the first few years of the child's life, as well as the absence of differences in the quality of emotional support, consistent with the interpretation chosen by parents to relax what they consider to be an unimportant maintenance practice for their children who are born in the next order. The parenting attitude will change after having a first child. In other words, the

second child and so on tend to be raised in a slightly different way than his brother. Different treatments from mothers also lead to different child behaviors.

Compared to the birth orderly child, children of higher birth order face lower cognitive stimulation/resources, and emotional support from their parents (Lehmann et al., 2013). This is what makes the first child more attentive and sensitive to the needs of others because he is accustomed to paying attention to the needs of younger siblings since childhood. No one can deny that the burden placed on the first child is indeed heavy. The first child is believed to be able to open a way to help his younger siblings later and the burden is unavoidable to be undertaken without ever complaining. Realizing that the family's future is in the hands of the first child, there is no time to complain. For the sake of being a protector and a solid wall for the brothers, the first child is required to never give up. Based on these things, this paper aims to analyze the description of the first child's experience of parents' expectations and the role of the first child in the family to find its role in the family.

2. Methods

2.1 Research design

The method used in this research is a qualitative approach with the phenomenological method. Qualitative research intends to understand the phenomenon of what is experienced by research subjects such as behavior, perception, motivation, action holistically and by way of description in the form of words and language, in a special natural context by utilizing various natural sources (Moleong, 2018).

The main concept in phenomenology is meaning. Meaning is an important content that arises from the experience of human consciousness. To identify the essential qualities of the awareness experience done in-depth and diligence (Smith, Flowers & Larkin, 2009). The research method used to examine the condition of natural objects (as opposed to experimental), where the researcher is the key instrument. The data collection technique is done by triangulation (combined), the data analysis is inductive, and the results of qualitative research emphasize meaning rather than generalization (Sugiyono, 2014).

2.2 Participants

Participants in this study with reference between network or snowball. Snowball is used to help researchers find who has information that is important for research. Research participants amounted to 5 people with criteria: (1) Participants are children with the first order of birth with a subject age range of more than 23 years domiciled in Malang, East Java; (2) Participants stay separate with parents at least 3 years; with a name that is spelled out:

Table 1.

No	Name	Age	Gender	Long stay separate from parents
1	Lala	25 years old	Female	5 years
2	Dina	24 years old	Female	6 years
3	Ikhlas	26 years old	Male	4 years
4	Rina	25 years old	Female	7 years
5	Fadli	24 years old	Male	3 years

2.3 Data collection methods

Data collection methods used in this study were in-depth semi-structured interviews. In this study, researchers first make a framework of the subject matter that will be submitted to participants in the interview schedule. Interview questions addressed to participants are open-ended and do not lead directly to research questions.

2.4 Data analysis

This study uses Interpretative Phenomenological Analysis (IPA; Smith et al., 2009; Smith, 2011) data analysis techniques. Science deals with a detailed examination of personal life experiences, the meaning of the experience to participants, and how participants understand the experience. IPA data analysis techniques are considered appropriate because the IPA tries to examine how an individual interprets important experiences in his life in a natural setting (Smith, 2011; Smith et al., 2009).

The process of data analysis in the scientific approach places the researcher as an active research instrument to understand the world of subject experience through a process of interpretation. Science involves two interpretation processes (double hermeneutics), in which researchers try to understand participants who try to understand what is happening to them (Smith, 2011; Smith et al., 2009). Data analysis using natural science techniques is passed by reading transcripts repeatedly, this stage requires the process of repeatedly reading transcripts that have been obtained; initial noting, the researcher checks the meaning of the words contained and the language used in the exploratory stage. exploratory comments or notes. What is meant by exploratory comments is descriptive comments; linguistic comments; and conceptual comments; then develop emerging themes (developing emergent themes); look for the same relationship between themes; Look for similar patterns between cases, and the last describes the parent theme.

3. Results

After analyzing the data, three themes emerge that explain how the process of a first child reaches his role in the family, how important the role of the first child in the family and the desire to achieve the first child in the family.

3.1 Learning to be responsible

Starting with being forced to finally get used to and produce results

A first child was considered its role in the family when she started at the age of adolescence, where age that they were given little by little responsibility for the tasks at home, such as watching the clock to learn his brother, to and from school together with his younger brother, to explain the lesson to his brother. Of these things when they do not perform or perform the duties and responsibilities properly, it will have consequences such as being scolded or in pieces of pocket money, but they feel it does not matter because it is their fault. As explained by the participants:

“... when I was in junior high school... around the age of 13, I was asked with my parents to go home together with my sister ... it couldn't I get angry ...” (Lala)

As a child, when given responsibility by parents at first feel forced to be given tasks that they think they should not do. But they will still carry out even in a state of compulsion because they feel it is not permissible for a child to resist what is ordered by parents. Over time they understand that these things help them in being responsible not only to their younger siblings but to individuals and others, as participants explained:

“... it's sucks ... forced to teach my brother when he was doing homework, but I can't refuse the requests of parents ... but now just so relaxed anyway ... I've already been given the task of my parents, now when I stay away from parents, I've understood what it means if we have to take responsibility for what we do, it's not only for ourselves anyway, to other people too.” (Ikhlas)

Prioritizing tasks serve as a form of responsibility and moral burden for a first child, it is no doubt that the first child is often difficult to reject what has been asked by parents. However, for parents sometimes this makes the means to be more able to be responsible, not only in matters involving self-interest but also in the interests of the surrounding.

3.2 My response has meaning

Feel appreciated and recognized

Everyone in the family must have an important role in the family is no exception to the first child, the first child is considered more capable and mature in making decisions. This was stated when both parents are discussed in decisions that involve the family, indirectly, the first child will always be asked to comment about the issues discussed or just a listener for the JV their parents talking about her day. As the narrative of some participants felt more involved in deciding for the family:

“... I was invited to discuss ... ever about the problem of buying something ... I was the first to be asked for my response ... also if there was a problem with my sister at school ... sometimes my parents asked me ...” (Dina)

Inclusion of children in family issues first child feels he has an important role in the family. With its involvement in the realm of family and his opinions made considerations for parents.

Disappointment that grew to distrust

Not all birth orderly children feel it, others explained that he was not too involved even at all. From this emerged was a sense of disappointment, feeling his presence felt when an individual cannot express what he had in mind:

“... no, my opinion is rarely listened to by my parents too, conversely my parents ask my brother more often, I don't know, I don't know why, sadly not too involved and considered in the family, I'm the oldest ... now if I want to do something I have to think hard ... sometimes I doubt ... until I become insecure ...” (Fadli)

When someone does not feel involved in a role, making the individual less confident in taking steps in his life due to doubts that arise when he does not feel given the task or responsibility by his parents.

Become a substitute for parents

As the first child would be a place that is considered the second-highest after the parents for younger siblings. This is because when the younger siblings experience difficulties or problems, they usually first ask for advice and assistance from the brother:

“... my sister often tells me, sometimes tells about lectures, friendship ... they enjoy telling me ... and they are afraid to tell their parents. maybe because my age with my sister is not far so they feel comfortable with me” (Lala)

Children with birth order first tend to try to please their parents, sometimes they act as a surrogate for their sisters by giving advice or just listen to the laments his brother because the age range that is not too much that made his younger feel comfortable to tell he complained openly to their older sibling.

3.3 *Become a successful and proud figure*

A child must have good hopes and desires of the family as the family is always in a state of good sufficiency regarding clothing, housing, and food. Younger siblings can complete education with good results:

“[...] I have a desire to have a job that generates sufficient salary, in the sense enough to help parents add to the cost of everyday life, who try do not want to live good, affluent, younger siblings of school until college, my parents have the good educational background, why their children cannot like his parents.” (Rina)

Not only in formal education but in non-formal education such as talents and interests channeled. For himself, the first child hopes that he can be a reflection for his younger sibling to be a better person than himself, supported also by parents who have a fairly good educational background will always provide support for their children, especially in terms of education. Success and pride of both parents is not always the foundation of a child with the birth of a first child, but the child in the first birth sequence sometimes becomes a benchmark for the success of his younger siblings, this is what raises so much hope from his brother for his younger sibling.

4. Discussion

This paper will discuss the process of a first child reach his role in the family, the importance of the first child in the family, as well as attaining a first child in the family.

Birth order is one of the most extensive human experiences, which is universally considered to determine how intelligent, kind, responsible, sociable, emotionally stable, and open to new experiences (Sulloway, 2018), therefore parents consider the first child always reliable. At first, a first child feels considered his role in the family when he begins in his teens, where at that age they are given little by little responsibility for tasks at home, such as monitoring the learning hours of the younger sibling, going and going to school together with younger siblings, to explain the lesson to the sister From these things when they do not do or carry out their duties and responsibilities properly, they will get consequences such as being scolded or cut into pocket money, but they feel it is not a problem because it is indeed their fault. Children born in the first order are generally identified by parents as adults, conscientious, and responsible. Because of this identity parents tend to give the first children greater autonomy (Passey, 2012).

The independence of the first child in playing a role makes them look more mature and responsible (Passey, 2012). As a child, when given responsibility by parents at first feel compelled to be given tasks that they think they should not do, in adolescence children tend to bring up an attitude of resistance, closer to peers, this is because adolescence is a period full of “storms and mental stress” , a period in which there is a great physical, intellectual and emotional change in a person which causes sadness and indecision to the person concerned, and causes conflict with his environment (Hoffnung et al., 2016). But they will still carry out even in a state of compulsion because they feel it is not permissible for a child to resist what is ordered by parents. Over time they understand that these things help them in being responsible not only to their younger siblings but to individuals and others. By prioritizing tasks that serve as a form of responsibility and moral burden for a first child, it is no doubt that the first child is often difficult to reject what has been asked by parents. However, for parents sometimes this makes the means to be more able to be responsible, not only in matters involving self-interest but also in the interests of the surrounding.

Everyone in the family must have an important role in the family is no exception the first child, the first child is considered more capable and mature in making decisions it is stated when both parents discuss in decisions that involve the family, indirectly, the first child will always be asked to comment about issues discussed or just a listener for the JV their parents talking about

her day. This is where a first child to feel he had an important role in the family. Almost every parent has direct experience in which they see children older act and behave differently from children who are younger, who are born again (Rohrer, Egloff & Schmukle, 2015) because it was the parents were more likely to ask for consideration of first child.

Not all of the first children feel this, others explain that they are not too involved or even not involved at all. For some people the birth order is an idea that may never be completely lost which means that almost everyone has a direct experience where they see older children, acting and behaving differently from younger children. The birth order itself has little or no substantive relationship with the development of personality traits and has very little relationship with the development of intelligence (Damian & Roberts, 2015). This sometimes makes parents considerations in involving their children in decision making in the family. As a result, there is a sense of disappointment, feeling his presence is not felt when an individual cannot express what is in his mind. Making the individual less so as not to be confident in taking steps in his life due to doubts that arise when he does not feel given the task or responsibility by his parents.

As the first child, of course, is considered the second-highest place after parents for younger siblings. This is because when the younger siblings experience difficulties or problems, they usually first ask for advice and assistance from the brother. The first child tends to give advice or just listen to the complaints of the younger sibling because the age gap is not too far away, this makes the younger brother feel comfortable to tell his complaints to his brother, the brothers here are understood as peers (Schwefer, 2018). Besides, the first child tends to try to please their parents by acting as surrogate parents for their siblings, this is a behavior that they do with full awareness (Rohrer et al., 2015).

The effect of birth order can be seen in the family, but it may not affect the behavior and relationships between siblings. Birth order may primarily or exclusively affect those parts of the personality system that are inaccessible or that are covered up (Marini & Kurtz, 2011). As a child, of course, have good hopes and desires that are positively related to self-esteem, and positive expectations (Bailis & Chipperfield, 2018; Bruininks, 2012), for his family like the family is always in a state of adequate good regarding clothing, shelter, and food. Younger siblings can complete education with good results. Not only in formal education but in non-formal education such as talents and interests channeled. For himself, the first child hopes that he can be a reflection for his younger sibling to be a better person than himself, supported also by parents who have a fairly good educational background will always provide support for their children, especially in terms of education.

5. Conclusion

The process of a first child achieving his role in a family in which there is the beginning of the first child by being forced to carry out his duties as a responsibility and finally accustomed to fruition in his current life. With the recognition of roles, the first child tends to feel valued, recognized his existence, and will feel disappointed so that it becomes self-confidence due to lack of involvement in decision making in the family but sometimes they act as a substitute for parents. As well as the desire to achieve the first child in the family, as a child certainly has good hopes and desires that are positively related to self-esteem, and better expectations of his family life.

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