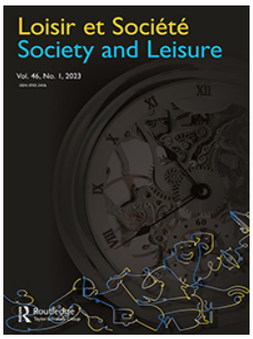

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The rehabilitative effect of chess on the visually impaired

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Playing chess is a difficult mental activity that requires extraordinary problem-solving skills. Just like professional chess players, visually impaired players use their memorizing and tactical skills, as well as their problem-solving and predicting skills. The aim of this study is to understand how chess affects the lives of the visually impaired and to show the rehabilitative effects of chess more clearly.The compatibility of the encodings was discussed, and a code list was created by reaching a common decision. It has been clarified that people with visual impairments pursue happiness, aim to lead a good life, and gain benefits in terms of cognitive, affective, and psychomotor skills by playing chess. Different types of activities might also have rehabilitative qualities, therefore different applications to different activities can also be used.

Keywords: chess; rehabilitation; recreation; visually impaired; leisure time

Jouer aux échecs est une activité mentale difficile qui requiert des capacités extraordinaires de résolution de problèmes. Tout comme les joueurs d'échecs professionnels, les joueurs malvoyants utilisent leurs capacités de mémorisation, de stratégie, de résolution de problèmes et de prévision. L'objectif de cette étude est de comprendre comment les échecs affectent la vie des malvoyants et d'essayer de révéler plus clairement les effets de réhabilitation des échecs. La compatibilité des codages a été discutée et une liste de codes a été créée en parvenant à une décision commune. Il a été clarifié que les personnes déficientes visuelles recherchent le bonheur, visent à mener une bonne vie, et obtiennent des bénéfices en termes de compétences cognitives, affectives et psychomotrices avec les échecs. Différents types d'activités peuvent également avoir des qualités de réadaptation, c'est pourquoi différentes applications à différentes activités peuvent également être utilisées.

Mots clés : échecs; réadaptation; loisirs; malvoyants; temps libre

Introduction

The Queen's Gambit, an original Netflix series, was watched by 62 million users in just 28 days following its release. Netflix announced that *The Queen's Gambit* has become one of the 10 most watched series in 92 countries and the number one most watched in 63 of those countries. It is the most watched Netflix mini-series of all time (White,

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2020). The series tells the fictional tale of Beth Harmon, portrayed by Anya Taylor-Joy. The plot focuses on how her life changed thanks to her unique interest and talent in chess since her childhood, and how she managed to cope with tragic misfortunes through playing chess. In the first episodes of the series, before falling asleep Beth reimagines the games she had in the morning while looking at the ceiling. Therefore, she comes up with new tactics and improves upon them, and from time to time she even manages to win the games she had lost in the morning. The reason this series astonished millions of people was without a doubt the quality of the fiction and the scenario but also the unique nature of the game of chess. Since it was aired during periods of lockdown, for viewers chess become a good option for a therapeutic leisure-time activity. A spokesperson for the largest online shopping website eBay, Kara Gibson, announced that, since the first airing of the series, the sale of chess set has risen by 215% (Fazio, 2020).

Of course, chess did not only become popular because of the TV series. *The Queen's Gambit* simply reminded us of the unique features of the game and encouraged people to take it up. So, what are the unique features of the game? Can chess be considered as a sport or just a good choice to make the best of our leisure time? Or should chess be considered on a completely different level?

Chess – Physical activity and leisure time

Leisure time is when people assess the time they spend apart from their everyday employment and personal care (Chatzitheochari & Arber, 2012). It has become a concept associated with play and free time in physical activities. Every game played, unless it is professional, is a free-time activity (Božović, 2008).Although the game of chess is not a physical activity, it is included in sport as a mental activity.

Kobiela (2018) stated that chess was a physical activity by calculating the pulse rate, consumption of oxygen, carbon dioxide emission, and ventilation and breathing frequency. The fact that mental activity causes physiological changes is also a reason for us to see chess as a physical activity (Troubat *et al.*, 2010). It has been proven that the physical and mental effects of chess are considerably greater than those of most other sports.

As well as requiring extraordinary problem-solving, chess is also science and art (Kim *et al.*, 2021; Song *et al.*, 2020). It improves expertise and mental skills in a specific subject (Kiesel *et al.*, 2009). De Groot (1978) stated in his research that chess masters show extraordinary perception skills. The game of chess encompasses mental processes such as memory, detection, concentration, focus, problem-solving, visual-spatial perception, motivation, and decision-making. Studies have shown that professional chess players have an extraordinary memory. They are capable of memorizing the game within seconds. During a complex game, they create strategies, predict following moves, foresee the result, and play other games of chess with different players at the same time (Ouellette *et al.*, 2020).

Chess is a good leisure-time activity. The period when chess flourished and was most popular as a leisure activity was between 1840 and 1851. Chess has been classified as sport, entertainment, occupation, science, and art. In the United Kingdom, chess has been classified as a sport since the first national chess tournament took place in 1849 and the first international tournament in 1851 (Sharples, 2015). Chess, which is one of the rare sports that does not have an age limit, has been regarded as an irreplaceable leisure-time activity for children, adults, and people of all ages, and there is huge demand on the

market. Since there is no need for expensive materials, outfits, or a specific place, chess provides ease of access for everyone.

It is known that recreational activities are a good way to improve our physical and mental health. Chess, which has a considerable effect on the acquisition of decision-making skills under pressure, is being taught in the curricula of many countries and used as an effective method of rehabilitation for those with mental illnesses (Dilmaghani, 2020; Kim *et al.*, 2021; Maqbool *et al.*, 2020). In this regard, it is safe to say that, in terms of recreational activities, chess has educative and rehabilitative qualities.

Rehabilitative effect of leisure activities

Leisure activities are primarily intended to assist people in appropriately managing their free time to renew themselves spiritually and physically through the activities they engage in during their free time.The impact of leisure activities on health is essentially divided into two parts. The first is recreational services provided to healthy individuals under the umbrella of "preventive health services," and the second is recreational services provided to people with disabilities and health problems under the umbrella of "rehabilitation and well-being (rehabilitation) services" (Tütüncü, 2012). Leisure activities used for the rehabilitation of sick and disadvantaged people are one of the services provided for improvement. Leisure activity benefits are always mutually beneficial. An activity can simultaneously boost one's physical, mental, emotional, or social well-being (Aslan, 2013). The foundation of rehabilitation or treatment is the discovery of barriers and constraints in a person's bodily processes, as well as the acquisition of certain abilities (Karakuş, 2012). With recreational therapy, people are encouraged to take better care of themselves, and it is intended to support the growth of their social, physical, and psychological health.

At around the end of the eighteenth century, rehabilitative recreation began to be applied. The café established in the hospital by Florence Nightingale, a nurse, to assist troops affected by the Crimean War in 1854–1856 by using music, theater, game activities, and book readings, can be considered the first instance of a systematic approach. In America, during the first and second world wars, recreational activities became increasingly significant and evolved owing to their therapeutic benefits (Austin & Crawford, 2001). Later, the widespread rehabilitative recreation method was supported by the intense immigration events that occurred in the United States and the social issues that they led to. Because of this circumstance, rehabilitative recreation approaches have evolved to become both individually and collectively focused on the future. Participating in activities and fostering friendships help people become more socialized and maintain their place in society by ensuring acceptance by the community in which they live (Caldwell, 2005).

Leisure activities are very important activities in terms of self-realization through socializing and having different experiences (Mansourian, 2021). Physical activities done as leisure activities are very important both in terms of recreation and rehabilitation for many disease and disability groups (Reyes-Joa *et al.*, 2020). During the Covid-19 pandemic, many studies revealed how effective leisure activities are in coping with individuals' negative emotional states (Meira *et al.*, 2020). In addition, the rehabilitation effect of leisure activities has been clearly demonstrated by studies conducted on women with breast cancer (Kim *et al.*, 2021), diabetes patients (Boyer *et al.*, 2021), and children who have cerebral palsy (Ruin *et al.*, 2021).

Rehabilitative effect of chess on the visually impaired

Chess is a cheap and effective resource for activating human mental activity. Over the past 20 years, scientific research and practical social and pedagogical activity have been exploring the possibilities of using chess as a means of rehabilitation: healing in the process of playing chess and through the game of chess. Chess therapy helps in developing a therapeutic alliance between the psychotherapist and their patient to help them through any psychological or emotional problems that they may be experiencing. The first officially recorded case of using chess therapy occurs in the medical practice of Dr. Rhazes, the chief physician at Baghdad Hospital. He used chess strategies and tactics as metaphors for real life to help patients think more clearly (Fadul & Canlas, 2009). Chess is one of the most popular childhood hobbies and courses or clubs that children attend (Jurikova & Stodolova, 2015). It has been observed that elderly people with cognitive impairments do not participate in physical activities but tend to play chess and card games for both leisure and rehabilitation purposes (Chiu *et al.*, 2013). The effect of chess on patients diagnosed with dementia has been measured, and as a result, it was emphasized that although chess had no direct effect on individuals, it was indirectly protective thanks to its cognitive benefits. In addition, it has been determined that chess may have an effect on dementia prevention and early diagnosis, but it has little effect once the disease is diagnosed (Lillo-Crespo *et al.*, 2019).

It is well known that chess is a brain sport. This feature has made it very popular among those who cannot see chess. The fact that chess is based on mental activity rather than physical movement reduces the risk of undesirable accidents and other negative incidents that may arise from sports activities related to the physical activity of a visually impaired person. Of course, it is possible for visually impaired people to play sport based on physical activity, and this is necessary for their physical health, such as swimming, gymnastics, running, mountaineering, and football, when the conditions are met. However, some additional conditions must be met in all these activities, especially adapted athletic fields, guides, etc. In this respect, chess is a sport for the blind that requires the least material. The provision of only one embossed chess set is sufficient for this task. This is certainly true, at least for a start. It is a method used for physical and mental therapy to enable visually impaired individuals to play chess in a safe environment by putting them at less risk. It is also the most accessible activity for physically handicapped, hearing-impaired, and mobility-impaired patients (Balata *et al.*, 2015).

The ability of sighted individuals to play chess by closing their eyes is a sign of mastery. However, considering the difficult conditions which people with visual impairments encounter when learning and practicing the game of chess, it is obvious that the superior skill is incomparable to that of a sighted individual. Research which has studied this phenomenon has noted that visually impaired people can use mental images very well and therefore have no difficulty in learning chess (Balata *et al.*, 2015; Saariluoma, 1991). It can be said that the memory skills acquired in activities such as mental calculation and chess help to keep the retrieval cues in the short-term memory accessible and to achieve a professionally expert performance (Ericsson & Kintsch, 1995). The mind eliminates the irrelevant information that the sight picks up because the mind takes precedence over abilities. In their research, Saariluoma and Kalakoski (1998) found that the chessboard causes more vivid mental imagery compared to other activities. In a study where sighted and blind individuals were subjected to the embedded figures test by closing their eyes, it was observed that the blind individuals achieved superior performance in touching, selecting, and combining faster (Heller *et al.*, 2003).

In a study conducted on players who did not have visual impairment but can play chess without seeing pieces the stones, the mental visualization skills of the participants were observed. It was found that they were not able to mentally depict the objects as the visually impaired people were; it was understood that they had an idea about the location of the pieces and their relations with each other only thanks to their soft data-processing skills and perceptions (Mechner, 2010).This situation may call for the necessity of giving visually impaired individuals an equal opportunity to compete, and may provide an advantage for people with congenital visual impairments.

In a study conducted with 250 visually impaired students, it was found that chess creates awareness among students with a rate of 87.2% (Senjam e*t al.*, 2020). Chess, when played by feeling with Braille chess or by playing in the mind without using a board, provides opportunities such as spiritual relaxation, socialization, and self-awareness. Individuals with visual impairments deal with social uncertainty. But chess, when played in the mind, is a comfort zone for the visually impaired. They set the rules; and, without needing to talk or see, they hold the power to compete and show strength, draw lines, know the enemy from the friend, and react accordingly. They may use this safe zone to unleash the anger they might keep in. They might find strength in their weaknesses, and they might be recognized and appreciated in this comfort zone. The use of chess to help people with disabilities integrate into society, and improve their psychosocial health, is considerably important. They learn to challenge and improve themselves, to be more motivated toward life; chess improves their mood and increases their learning capacities (Reyes-Joa *et al.*, 2020).

Chess is the most popular sport among the visually impaired because it is the best alternative for visually impaired people who prefer not to do physical activity because of their disability. Visually impaired people who rely on their strategic intelligence and memory and need mental development generally prefer chess. Participating in leisure activities has a positive effect on the happiness, quality of life, life satisfaction, self-confidence, and psychological well-being of the individual (Passmore and French, 2001; Gould et al., 2008). Considering the unique place of chess in leisure activities, it is clear that it will make an extra contribution to the positive psychological factors above. However, understanding the positive effects of chess, especially for disabled individuals and people with visual impairments who participate in chess activities with great interest, will enable us to fully comprehend the rehabilitative power of leisure activities. In this sense, the purpose of this study is to understand how chess affects the lives of the visually impaired and to reveal the rehabilitative power of chess more clearly.

Method

This study used qualitative research in terms of its nature and research question. The research was phenomenological with a qualitative research design (Yıldırım & Şimşek, 2016). Phenomenology, derived from the Greek term “phenomenon,” means “to show oneself.” It means to make something visible (Raffoul, 2017). The aim of the study was to deeply comprehend the opinions of individuals on the sport of chess and its impact on their lives. Therefore, this study was seen as phenomenological research. Interviews are the main data-collection tools in phenomenological studies (Yıldırım & Şimşek, 2016). The researchers accessed data sources by conducting semi-structured interviews with people with visual impairments who experience the same phenomenon.

Participants

This study was applied to a total of 100 participants. The participants were all Turkish speakers (88 male and 12 female). While 74 of the participants were born visually impaired, 26 became visually impaired later in their lives. The average total age of the study sample was 37.45 years (SD = 10.23). All procedures were approved by the local ethics committee, and all data were collected in accordance with the latest version of the Helsinki Declaration. All the participants were informed about the study, and they voluntarily participated.

Procedure

The research data were collected during the Turkey Visually Impaired Chess Championship, which was held on 3–8 February 2020. Two researchers stayed in a hotel where the championship was held. The researchers in the interview team included one female and one male researcher who are academicians in the field of sports sciences. The participants were interviewed with their preferred researcher. The interviews were held before the competition, at the end of the competition, and after dinner in a quiet environment in the hotel's meeting room and lounge. The visual and audio data were collected by filming with a professional camera. For those who did not want to provide images, only audio was recorded, and for those who did not want to record images and sound, the interview transcription was noted as Q&A. Each interview with the visually impaired chess players lasted between 25 and 40 minutes. It has been observed that people with visual impairments have shy attitudes toward image and sound recording. Few interviews were conducted in the first two days, to not scare away the participants and to let them understand the reason for the research. The reason that there are fewer interviews with female players is that many visually impaired females did not want to be recorded on video and audio because they avoid talking to people whom they do not know and were introverted individuals. The interviews were conducted in the native language of the participants.

Apart from demographic questions, three questions were posed to the participants, and, according to their answers, some additional questions were also asked.

- How does playing chess affect your decision-making process in normal life? Do you see any benefit?
- Do you think that you are visually impaired while playing chess? Or do you ever forget?
- Do you consider yourself successful in chess? Do you experience success when you play against someone who is not visually impaired?

Statistical analysis

The data collected from the participants were transcribed by the researchers and subjected to content analysis. The main purpose of content analysis, as stated by Strauss and Corbin (1990), is to help us understand the facts more deeply by revealing the facts hidden in the data. The data transcribed in accordance with the steps of content analysis were encoded by two researchers, by reading them line by line during the analysis process. By comparing the encoding done separately by the two researchers, the compatibility of the encodings was discussed and a code list was created by reaching a common decision. The themes and codes that emerged as a result of the joint decision were presented to one specialist in the field of special education and one in the field of sports science, and their conformity opinion was obtained.

Findings

The data obtained from the interview questions were encoded and collected under themes. There were three main categories deducted from the opinions of the participants about chess. These categories are: affective aspect, cognitive domain, and psychomotor skills. Table 1 shows the affective aspects of chess in people with visual impairments.

On examining Table 1, it can be seen that there are three sub-themes under the Affective Aspect theme. The data analysis shows that playing chess has a significant emotional and affective impact on the lives of people with visual impairments. This finding is thought to be particularly important for individuals with disabilities who have difficulties with social integration. Participants stated that playing chess developed their positive self-perception and social skills:

Table 1. The affective aspects of chess in the visually impaired.

Main category	Sub-category	Encoding
Affective Aspect	Social Skills	Integration into Daily Life
		Associating with Daily Life
	Positive Self-Perception	Decision-Making
		Psychological Satisfaction
		Self-Knowledge
		Confidence
		Temporarily Overcoming the Disability
	Self-Impairment	Incapacity
		Inability to Go Beyond the Disability

> I feel happier when I play chess. I also beat my sighted friends at work and I feel successful. (k4)

> I feel happier when I play chess. I also beat my sighted friends at work and I feel successful. " It is thought that the people with visual impairments who stated that they beat their sighted friends while playing chess and stated this as a success enabled the individual to get over their disability for the moment and to develop their self-confidence and feel that they exist in social environments. k12's statement: "I feel successful while playing chess. We cannot discriminate those who are sighted or not, whoever plays well wins after all." the statement that the visual impairment does not constitute an obstacle to success and that k12 comes forward with his intelligence is an interesting finding that shows that the individual both have a self-awareness and has self-confidence in this regard. k23 said "..chess allows me to have positive thoughts, for example I play with sighted people, but I am so able to see myself more successful from those are sighted. Chess makes people more determined, successful and ambitious." This statement shows that playing chess is psychologically satisfying and makes you feel adequate. k28, about effects of playing chess on life, stated, "Chess is a philosophy of life for me. Chess is not even as simple as the one here our friends play. I took part in trainings abroad, increased my knowledge with private tutors and become a master. I have to play mentally as I cannot touch due to my disability. And this situation turned my life into chess. I need to do special moves like in chess. Chess is not just my decision-making process, but my whole life.

For k4, this enabled them to overcome their disability for the moment and to develop their self-confidence and feel that they exist in social environments.

> I feel successful while playing chess. We cannot discriminate between those who are sighted or not, whoever plays well wins after all. (k12)

The statement by k12 that visual impairment does not constitute an obstacle to success and that k12 comes forward with his intelligence is an interesting finding that shows that this individual has both self-awareness and self-confidence in this regard.

> chess allows me to have positive thoughts, for example, I play with sighted people, but I am so able to see myself as more successful than those are sighted. Chess makes people more determined, successful and ambitious. (k23)

This statement shows that playing chess is psychologically satisfying and makes k23 feel successful.

Regarding the effects of playing chess on life, k28 stated:

> Chess is a philosophy of life for me. Chess is not even as simple as the one here our friends play. I took part in trainings abroad, increased my knowledge with private tutors and become a master. I have to play mentally as I cannot touch due to my disability. And this situation turned my life into chess. I need to do special moves like in chess. Chess is not just my decision-making process, but my whole life. (k28)

Similarly, statements from other participants indicate that chess plays an important role in the lives of the visually impaired and has an impact on their lives.

On the other hand, although its frequency is low, some of the participants stated that they could not overcome their disability while playing chess. K5 noted their feelings of inadequacy:

> I cannot forget about my disability, it is not possible, even our boards are specially designed, it also affects me.

K58 stated their own feeling of inadequacy as follows:

> I consider myself partially successful in chess, I have shortcomings, of course, and those who are sighted play better than me ...

Table 2. The cognitive domain and psychomotor skills of chess in visually impaired individuals.

Main category	Sub-category	Encoding
Cognitive Domain	Thinking Skill	Analytical Thinking Academic Success Critical Thinking
Psychomotor Skills	General Performance	Being Trained Lack of Training

Table 2 contains the codes for the thinking skills of the participants, which fall under the main category of the cognitive domain regarding chess. When the statements of the participants are examined, it is seen that especially analytical and critical thinking skills are developing, and this has an effect on academic success:

Chess enables me to think analytically and strengthens my analytical decision-making. (k9)
Chess teaches me to think critically and analytically. (k38)
We make a lot of moves in the games and we need to think critically about the moves we make. I also improve as I play. (k24)

Thinking skills from this category are also related to the codes of integration into daily life and associating with daily life in the affective field. Participants stated that they also integrate these skills into their daily lives. At this point, the effect of this cognitive development on the affective domain is seen as an important finding.

In Table 2, the encoding obtained from the participants' perceptions of performance and the underlying reasons related to playing chess are given. The most striking finding under this category is that the participants stated that their disability has no effect on chess. Being trained or lack of training were stated by the participants as factors affecting success in chess:

I have to train more. I am a little incompetent because I do not train much. (k57)
I consider myself successful, but winning and being successful depends on training. (k6)
I am a national player; I also play with normal people and I do not see myself as successful. I've seen people better than me. I have to train hard to be better and more successful. (k26)

Discussion

Among the debates about whether it is a sport or not, chess is a subject that has been examined by researchers as a mental activity which also provides benefits for people with visual impairments. Like all people, individuals with visual impairments need enjoyable activities when making use of their free time.

Recreation studies in the literature reveal that individuals pursue happiness, aim to lead a good life, and gain benefits in terms of cognitive, affective, and psychomotor skills with activities by which they spend their free time (Lin, 2019; Wheaton *et al.*, 2021).

In addition, leisure and recreation activities are organized on behalf of disabled individuals, who make up 15% of the world's population, and this issue is studied by scientific studies (Hassett *et al.*, 2021).

Chess, which has an important place in leisure activities for all age groups with its entertaining and beneficial features, has many additional physical and mental benefits. For people with visual impairments, chess is observed with its therapeutic properties along with the benefits provided as a recreational activity. People with visual impairments have the opportunity to make self-realization possible and find who they are by playing chess. Important evidence is the use of chess for therapeutic purposes in rehabilitation centers. People with visual impairments can overcome their disabilities with their feelings, senses, and memories while playing chess, and chess also provides them physical, psychological, and sociological benefits.

Considering the affective impact of chess in people with visual impairments in Table 1 in this study, it is seen that playing chess increases the communication of people with visual impairments with people both with and without visual impairments and eliminates disabilities by removing the social-affective barrier. People with visual impairments forget about their disabilities thanks to the excitement in the deep strategy and tactical world of chess. Their self-esteem and self-confidence increase, and they can completely forget about their obstacles by putting themselves and their intelligence on the squares of

the chessboard. Although it is observed that some disabled individuals cannot overcome the thought that they are disabled, with chess, people with visual impairments can create a social environment in which they feel better. Reyes-Joa *et al*. (2020) found that, with success, disabled individuals find an increase in self-confidence, psychological satisfaction, and improvement in their relationships within their home environment by forgetting their disabilities and inadequacies. People with visual impairments socialize with their friends and their trainers while playing chess.

Table 2 shows how playing chess has affected the visually challenged players' cognitive and psychomotor growth. When the cognitive effects of chess on people with visual impairments are examined, it is observed that playing chess increases the abstract thinking capacity of people with visual impairments through logical thinking, improves their analytical and critical thinking skills, and increases their daily life skills. I. V. Mikhaylova and Alifirov (2017) stressed that teaching children with autism mind-reading and floor-time methods in the chess game learning process effectively mitigate communicative disorders. They found that it was possible to develop and test the practical application of a chess game course designed to correct different deficiencies in attention focusing, memory, and thinking abilities. In terms of psychomotor development, the performance perceptions of people with visual impairments and their underlying reasons were examined.People with visual impairments stated that they forgot about their physical disabilities while playing chess and that their disabilities did not matter while playing chess. People with visual impairments believe that they can completely eliminate the effect of their visual disability on their performance with more training. In their study, I. Mikhaylova and Makhov (2018) determined that chess is presented as a physical activity option for disabled individuals. In the practical learning process of chess, physical activities are normalized for individuals with disabilities.

Future studies could examine the curative properties of different activities performed by people with visual impairments by categorizing them according to the number of years playing chess. In addition, improvements could be observed in people with visual impairments by the use of chess applications by teachers, counselors, or rehabilitation centers.

Conclusion

It should not be thought of as a coincidence that interest in chess is growing more than ever around the world. Many features of chess attract disabled and non-disabled individuals regardless of the continent.

Individuals with disabilities can process the information they have previously obtained by synthesizing. By improving their short-term memory, they acquire analytical thinking and generalization skills. They can socialize with their trainers and chess friends. In this regard, this study, which examines the effects of chess on the lives of people with visual impairments, shows that playing chess should be more widespread among people with visual impairments. Considering this affective, cognitive, and psychomotor change among the visually impaired, it can be said that chess has a very important rehabilitation effect.

Limitations

This study had several limitations. Firstly, in the findings section, no differentiation was made between those who had been playing chess for many years and those who had only been playing for months. The categories might vary depending on how many years the participants have been engaged in chess. Secondly, just as almost in every phenomenological research, there is a possibility that some participants were not able to understand or interpret the questions researchers had asked them in the same way that the other participants did. While some of the interviews with the participants had been conducted in quiet and friendly environments with more in-depth conversations, others had been done on foot with more straight-to-the-point conversations. Another limitation was the specification of main categories in the results. Even though the participants had tried to express their main views about the subjects, they had varying answers and comments. In addition, only 12 female participants out of 100 participated in the study. The main reason for this females did not want to be recorded on video and audio. This study was conducted only with visually impaired people. Future studies can reveal how visually impaired and non-impaired individuals affect the success and failure criteria in chess. In this paper, the rehabilitative qualities of chess have been studied. The rehabilitative qualities of different activities that people with visual impairments do can also be studied.

Implications for practitioners

Before conducting similar research, it is necessary to provide information about the research to the Federation officials. Since some people with visual impairments might be reluctant or shy about participating in such a study, it might be better to meet them in person and gain their trust before conducting any interviews. Also, it is better in terms of reliability if there is a carer they trust in the room with them during the interviews, as this might give them a chance to talk more openly about their answers to the questions. The recording devices should be double-checked before the interviews. The recording must be done in a quiet environment. The questions should be asked in a sincere and friendly manner. The rehabilitative qualities of different activities can be studied in future research. The different values of chess for different individuals with disabilities and without disabilities can the subject of comparative research.

Disclosure statement

No potential conflict of interest was reported by the author(s).

References

Aslan, Ö. M. (2013). *Anaokuluna devam eden çocukların oyun davranışları ve oyunlarında ortaya çıkan zorbalık davranışları (Yüksek lisans tezi)*. Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü.

Austin, D. R., & Crawford, M. E. (2001). *Therapeutic recreation: An introduction*. Allyn & Bacon.

Balata, J., Mikovec, Z., & Slavik, P. (2015, October). Problems of blind chess players. *Proceedings of the 2015 6th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)* (pp. 179–183). IEEE.

Boyer, W. R., Ehrlich, S. F., Crouter, S. E., Churilla, J. R., & Fitzhugh, E. C. (2021). Leisure-time aerobic physical activity and the risk of diabetes-related mortality: An analysis of effect

modification by race-ethnicity. *Journal of Diabetes and Its Complications*, *35*(1), 107763. https://doi.org/10.1016/j.jdiacomp.2020.107763

Božović, R. R. (2008). Free time, play and game. *Sociologija*, *50*(1), 97–109. https://doi.org/10.2298/SOC0801097B

Caldwell, L. L. (2005). *Recreation and youth development*. Venture Publishing.

Chatzitheochari, S., & Arber, S. (2012). Class, gender and time poverty: A time-use analysis of British workers' free time resources. *The British Journal of Sociology*, *63*(3), 451–471. https://doi.org/10.1111/j.1468-4446.2012.01419.x

Chiu, Y. C., Huang, C. Y., Kolanowski, A. M., Huang, H. L., Lee, S. H., Lin, C. R., Hsu, W. C., & Hsu, W.-C. (2013). The effects of participation in leisure activities on neuropsychiatric symptoms of persons with cognitive impairment: A cross-sectional study. *International Journal of Nursing Studies*, *50*(10), 1314–1325. https://doi.org/10.1016/j.ijnurstu.2013.01.002

De Groot, A. D. (1978). *Thought and choice in chess. Thought and Choice in Chess*. De Gruyter Mouton.

Dilmaghani, M. (2020). Gender differences in performance under time constraint: Evidence from chess tournaments. *Journal of Behavioral and Experimental Economics*, *89*, 101505. https://doi.org/10.1016/j.socec.2019.101505

Ericsson, K. A., & Kintsch, W. (1995). Long-term working memory. *Psychological Review*, *102*(2), 211. https://doi.org/10.1037/0033-295X.102.2.211

Fadul, J. A., & Canlas, R. Q. (2009). *Chess therapy*. Lulu Press Inc.

Fazio, M. (2020, November 23). The Queen's Gambit sends chess set sales soaring. *New York Times*.

Gould, J., Moore, D., McGuire, F., & Stebbins, R. (2008). Development of the serious leisure inventory and measure. *Journal of Leisure Research*, *40*(1), 47–68. https://doi.org/10.1080/002222162008.11950132

Hassett, L., Shields, N., Cole, J., Owen, K., & Sherrington, C. (2021). Superior haptic perceptual selectivity in late-blind and very-low-vision subjects. *Perception*, *32*(4), 499–511. https://doi.org/10.1136/bmjsem-2020-000991

Heller, M. A., Wilson, K., Steffen, H., Yoneyama, K., & Brackett, D. D. (2003). Class, gender and time poverty: A time-use analysis of British workers' free time resources. *The British Journal of Sociology*, *32*(4), 499–511. https://doi.org/10.1068/p3423

Jurikova, J., & Stodolova, L. (2015). Researching out-of-school physical activities of students at selected elementary schools in the region of Broumov (Czech Republic). In S. Monica & P. Mihaela (Eds.), *ICPESK 2014 4th International Congress of Physical Education, Sport and Kinetotherapy* (pp. 303–307). Bologna: MEDIMOND Publishing Company.

Karakuş, Ö. (2012). Ergenlerde bağlanma stilleri ve yalnizlik arasindaki ilişki. *Toplum ve Sosyal Hizmet*, *23*(2), 33–46.

Kiesel, A., Kunde, W., Pohl, C., Berner, M. P., & Hoffmann, J. (2009). Playing chess unconsciously. *Journal of Experimental Psychology. Learning, Memory, and Cognition*, *35*(1), 292. https://doi.org/10.1037/a0014499

Kim, J., Kim, J., Han, A., & Nguyen, M. C. (2021). Leisure time physical activity, social support, health perception, and mental health among women with breast cancer. *Leisure Studies*, 1–11. https://doi.org/10.1080/02614367.2020.1869290

Kobiela, F. (2018). Should chess and other mind sports be regarded as sports? *Journal of the Philosophy of Sport*, *45*(3), 279–295. https://doi.org/10.1080/00948705.2018.1520125

Lillo-Crespo, M., Forner-Ruiz, M., Riquelme-Galindo, J., Ruiz-Fernández, D., & García-Sanjuan, S. (2019). Chess practice as a protective factor in dementia. *International Journal of Environmental Research and Public Health*, *16*(12), 2116. https://doi.org/10.3390/ijerph16122116

Lin, L.-J. (2019). Development of the therapeutic recreation profession in Taiwan. *Therapeutic Recreation Journal*, *53*(3), 289–295. https://doi.org/10.18666/TRJ-2019-V53-I3-9955

Mansourian, Y. (2021). Information activities in serious leisure as a catalyst for self-actualisation and social engagement. *Journal of Documentation*, *77*(4), 887–905. https://doi.org/10.1108/JD-08-2020-0134

Maqbool, Z., Aggarwal, P., Pammi, S., & Dutt, V. J. (2020). Cyber security: Effects of penalizing defenders in cyber-security games via experimentation and computational modeling. *Frontiers in Psychology*, *11*, 11. https://doi.org/10.3389/fpsyg.2020.00011

Mechner, F. (2010). Chess as a behavioral model for cognitive skill research: Review of blindfold chess by Eliot Hearst and John Knott. *Journal of the Experimental Analysis of Behavior*, *94*(3), 373–386. https://doi.org/10.1901/jeab.2010.94-373

Meira, C. M., Jr, Meneguelli, K. S., Leopoldo, M. P., & Florindo, A. A. (2020). Anxiety and leisure-domain physical activity frequency, duration, and intensity during Covid-19 pandemic. *Frontiers in Psychology*, *11*, 3758. https://doi.org/10.3389/fpsyg.2020.603770

Mikhaylova, I. V., & Alifirov, A. I. (2017). Chess game application for people diagnosed with mental and intellectual disorders. *Theory and Practice of Physical Culture*, *3*, 14.

Mikhaylova, I., & Makhov, A. (2018) Using chess potential for improving welfare of people with limited health capacities. *European Proceedings of Social and Behavioural Sciences*, 35, p. 888–899. https://doi.org/10.15405/epsbs.2018.02.105.

Ouellette, D. J., Hsu, D. L., Stefancin, P., & Duong, T. Q. (2020). Cortical thickness and functional connectivity changes in Chinese chess experts. *Plos One*, *15*(10), e0239822. https://doi.org/10.1371/journal.pone.0239822

Passmore, A., & French, D. (2001). Development and administration of a measure to assess adolescents' participation in leisure activities. *Adolescence*, *36*(141), 67–75.

Raffoul, F. (2017). Phenomenology of the inapparent. *Unconsciousness between Phenomenology and Psychoanalysis*, *88*, 113–131. https://doi.org/10.1007/978-3-319-55518-8_7

Reyes-Joa, H. M., Ramírez-Guerra, D. M., & Bueno-Pérez, L. A. (2020). The chess and the rehabilitation. *Arrancada*, *20*(37), 201–220.

Ruin, S., Giese, M., & Haegele, J. A. (2021). Fear or freedom? Visually impaired students' ambivalent perspectives on physical education. *British Journal of Visual Impairment*, *39*(1), 20–30. https://doi.org/10.1177/0264619620961810

Saariluoma, P. (1991). Aspects of skilled imagery in blindfold chess. *Acta Psychologica*, *77*(1), 65–89. https://doi.org/10.1016/0001-6918(91)90065-8

Saariluoma, P., & Kalakoski, V. (1998). Apperception and imagery in blindfold chess. *Memory*, *6* (1), 67–90. https://doi.org/10.1080/741941600

Senjam, S. S., Foster, A., Bascaran, C., Vashist, P., & Gupta, V. (2020). Assistive technology for students with visual disability in schools for the blind in Delhi. *Disability and Rehabilitation. Assistive Technology*, *15*(6), 663–669. https://doi.org/10.1080/17483107.2019.1604829

Sharples, J. J. (2015). I am a chess-player: Respectability in literary and urban space. *Sport in History*, *35*(2), 296–321. https://doi.org/10.1080/17460263.2015.1023825

Song, L., Ge, Y., Long, J., & Dong, P. (2020). Altered intrinsic and casual functional connectivities of the middle temporal visual motion area subregions in chess experts. *Frontiers in Neuroscience*, 14. https://doi.org/10.3389/fnins.2020.605986

Troubat, N., Fargeas-Gluck, M. A., Tulppo, M., and Dugue, B. (2010). Dépense énergétique d'une tâche cognitive : exemple du jeu d'échecs. *Science & Sports*, *25*(1), 11–16. https://doi.org/10.1016/j.scispo.2009.04.005

Tütüncü, Ö. (2012). The role of recreation and recreation therapy in quality of life. *Anatolia: Journal of Tourism Research*, *23*(2), 248–252.

Wheaton, B., Waiti, J. T. A., Olive, R., & Kearns, R. (2021). Coastal communities, leisure and wellbeing: Advancing a trans-disciplinary agenda for understanding ocean-human relationships in aotearoa New Zealand. *International Journal of Environmental Research and Public Health*, *18*(2), 450. https://doi.org/10.3390/ijerph18020450

White, P. (2020). *The Queen's Gambit becomes Netflix's biggest scripted limited series with 62m checking chess drama*. Deadline Hollywood.

Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin Yayınları.