

# **Perceived facilitators and barriers to participation in golf for people with vision impairment: a qualitative study**

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## **Funding**

The researchers received funding from EDGA to attend the golf tournament to facilitate data collection.

## **ABSTRACT**

**Objectives:** This study aimed to identify facilitators and barriers to participation in vision impaired (VI) golf.

**Design:** Semi-structured interviews were conducted with 12 VI golfers, 10 guides, and 5 novices during the British VI Golf Open tournament in August 2021.

**Results:** Qualitative content analysis identified the benefits, facilitators, and challenges of playing VI golf. The role of guides and future developments of the sport were furthermore identified. The benefits extend beyond those related to health, including personal development and a sense of purpose for players, and of reward for guides. Facilitators were largely organizational and having appropriate support and a guide. The challenges to playing and guiding were practical, financial, and logistical. The need to attract a more diverse range of players, along with a reconsideration of the eligibility criteria were central to the perceived sustainability of VI golf.

**Conclusion:** These results highlight the practical, financial, and logistical challenges contributing to VI golf activity limitations and participation restrictions. Due to the health, personal, and psychosocial benefits, ways of providing practical, financial, and support networks to facilitate engagement in VI golf should be sought. An evidence-based, sport-specific eligibility system was thought to be critical for the future promotion of VI golf.

## **Keywords**

Golf, vision impairment, guides, participation restrictions, participant experiences, activity limitations.

## **What is Known**

Participation in sports by persons with a vision impairment has numerous benefits for health and wellbeing. There may be participation barriers for golf for individuals with vision impairment that need to be identified.

## **What is New**

The benefits of participating in golf for individuals with a vision impairment included improved health, personal development, and providing a sense of purpose. Guiding visually impaired players was rewarding for guides. Engagement can be encouraged by limiting the practical, financial, and logistical challenges contributing to VI golf activity limitations and participation restrictions.

## **INTRODUCTION**

Long-term impairments such as vision impairment (VI) can limit equal participation in society, decrease quality of life, result in isolation, and lower overall life satisfaction<sup>1</sup>. The loss of independence and difficulties with engaging in physical activity often contribute to activity limitations and participation restrictions, as highlighted by the World Health Organization (WHO)<sup>1-2</sup>. The WHO defines activity limitations to include difficulty seeing, walking or problem-solving, and participation restrictions to include working, or engaging in social and recreational activities. Low levels of physical activity can lead to secondary health problems, thus amplifying the effects of the impairment<sup>3</sup>, whereas, appropriate physical activity can help mitigate these effects<sup>4,5</sup>. Participation in VI sport has been promoted due to the many benefits for physical health, mental health, and quality of life<sup>6</sup>. While numerous VI sports exist, some activities are more accessible to the VI population than others<sup>7</sup>. The International Classification

of Functioning, Impairment, and Health (ICF) model<sup>8</sup> shows that the selection of sports played by an individual with impairment may be based on their health and physical capabilities, and the available environmental and societal support systems.

Playing golf has been shown to have a positive impact on the health and wellbeing of the general population<sup>9-12</sup> and is a sport very suited to people with different types of impairment. Golf is not yet as popular among disabled people as it is amongst their non-disabled counterparts<sup>7</sup> and has high dropout rates and a small transition rate into regular participation<sup>13-15</sup>. Identifying factors that are barriers to participation is important.

VI golf is similar to sighted golf, with the primary difference being that each visually impaired golfer has a guide assisting them with their alignment with the ball and with the hole<sup>16</sup>. The same course is used in able-body and VI golf (each hole has the same par score) and scoring is identical in both versions of the game. Several different organizations and bodies run tournaments for golfers with a vision impairment including the International Blind Golf Association (IBGA); the European Disabled Golf Association (EDGA); and national organizations such as the Northern Ireland International Blind Golf Association (NIBGA). These bodies encourage participation and facilitate opportunities to compete in golf for people with VI.

The IBGA uses an eligibility system based on the individual's visual acuity (i.e., their sharpness of vision). Athletes are placed into 'classes' based on the severity of their VI. The B1 class is for golfers with light perception or who are completely blind. The B2 class is for those with better-than-light perception but up to a maximum visual acuity of 2/60. The B3 class

incorporates visual acuities of 2/60 to visual acuity of 6/60<sup>17</sup>. These measures refer to the best-corrected visual acuity in the “better” eye (or both). EDGA has, in addition, a B4 category, from 6/60 up to a maximum visual acuity of 6/36 and so includes players who may eventually become B1-B3. This allows them to become familiarized with the sport, facilitating their introduction to the game. It is notable that unlike many other parasports golf does not include a visual field assessment (i.e., peripheral vision) within the classification process. A recent Delphi review indicated evidence was required to assess the effect of visual field loss on golf performance<sup>18</sup>.

Despite the history of VI golf dating back to 1924, participation rates remain low<sup>17</sup>, indicating there may be participation barriers<sup>7, 14, 19, 20</sup>. This is surprising given the high rates of vision impairment in the elderly population. There are at least 2.2 billion people that have VI or blindness<sup>21</sup>, and since golf is a sport that can be played at any age, the sport could be ideal for these individuals. To encourage participation in VI golf, it remains vital to identify both the facilitators and barriers to engagement. Therefore, an in-depth understanding is needed of how people with VI (and those who support them) became aware of the sport and their individual experiences in the sport. The present study aimed to identify the facilitators and barriers to participation in VI golf. This includes an aim to outline the perceptions of those trying VI golf for the first time. This knowledge is vital to better encourage, facilitate, and support individuals with VI to take part in the sport.

## **MATERIALS AND METHODS**

### **Study design**

To fully explore the participation experiences of VI golfers and their guides, a cross-sectional qualitative study design was selected. To understand the facilitators and barriers, an interview methodology was selected. For those with VI completing written tasks such as questionnaires may be very difficult to do independently, and thus participants may find it difficult to fully express their thoughts. The interview process can provide the opportunity for participants to share their points of view and provide additional information to clarify their answers. Although this method is more time-consuming than questionnaires it was identified as the most suitable means of answering the research questions for this study.

Ethical approval was granted by the Vision and Hearing Sciences Departmental Research Ethics Panel at Anglia Ruskin University in Cambridge, UK (FSE/FREP/20/988). The study adhered to the tenets of the Declaration of Helsinki and is reported according to the consolidated criteria for reporting qualitative studies (COREQ; see Supplementary materials S1).

### **Patient and Public Involvement**

This research was designed with key VI golf stakeholders from the Northern Ireland VI Golf Association who helped inform the protocol, organize participants for the data collection, and provided opportunities during the tournament to enable the interviews to take place.

### **Participants**

The study took place in August 2021 during the British VI Golf Open tournament at Galgorm Castle Golf Club, Ballymena, County Antrim, Northern Ireland. As part of the event, there was

a VI golf “taster day” for people with a VI at the same venue. Purposeful sampling was used to recruit participants from three cohorts during the event itself: i) VI golfers taking part in the competition, ii) VI golf guides, iii) novice players trying VI golf for the first time during the ‘taster day’. The aim was to interview around 50% of these stakeholders at the event or until data saturation was reached. There were no exclusion criteria except that participants were required to be from one of these three cohorts. Recruitment was promoted by three members of the research team who gave a talk during the competition registration event. The researchers explained that they wanted to find out more about VI golf and ways of supporting the future of VI golf. Participants had the opportunity to sign up for the study during registration or to approach the researchers at the competition venue when they were not playing. The organizing committee also sent messages about the interviews before and during the event. The researchers ensured they interacted with players so that they were aware of the research during the tournament. Those who wanted to participate provided written informed consent and also consented for the interviews to be audio recorded.

## **Data collection**

An interview guide was prepared that required questions about background demographical information and open-ended questions to direct the semi-structured interviews (see Supplementary materials S2). All interviewers contributed to the interview guide and piloted it on two golfers before undertaking the interviews for the study. Obtaining the opinions of VI golfers regarding the questions was important to ensure the questions were relevant and appropriate in answering the research questions.

The interviews sought to explore participants' views and experiences of VI golf. The majority of the interviews were conducted with the players and guides together at the same time. The interviews lasted approximately 30 minutes in duration (range 20 to 50 minutes) and there was only one interview per participant. Having the joint interview was the preferred format for many participants as the VI golfers and guides were clearly in a partnership, working together as a team, and tended to support each other. This partnership is similar to that seen between able-body golfers and their caddies. Due to the VI golfer's reliance on their guides for more than just playing golf, they valued their guides being around during the process. The interviewers ensured that opinions were obtained from both participants, asking the options from both for each question. The interviews took place during the practice days before the tournament to ensure that players were not disturbed during the tournament itself and that the interviews were influenced by the performance in the tournament. The interviews were recorded and notes were taken by the interviewers. Those interviewed were met for the first time during the recruitment process. Three research interviewers [EB, PA, NH, all with Ph.D. qualifications] conducted the interviews, with the majority conducted by two interviewers per participant. All researchers had experience conducting research interviews. Having a range of interviewers helped reduce bias and misunderstandings and also allowed for wider perspectives regarding the importance of the information obtained. The three interviewers (1 female, 2 males) were selected with two having some golf experience and one having no golf experience, coming from a range of professional backgrounds being clinicians in visual and hearing impairment, and researchers in sports disability, visual and hearing impairment, and qualitative methods. These complementary backgrounds were important to minimize bias during the interview process.

## **Data Analysis**

The three interviewers regularly discussed the main patterns they identified during the data collection process. Following the interviews, transcription software was used to transcribe the interviews verbatim which was then re-checked for accuracy. These transcripts were not returned to players for comments. A naturalized transcription process was used to capture the whole sentence with as much detail as possible to represent a real word approach. The speech was expressed as it was, without being filtered, representing the data in a natural, objective, and accurate manner.

Qualitative data were analyzed using qualitative content analysis<sup>22</sup> and was done on NVivo 12 software. Although thematic and content analysis are appropriate for qualitative data, content analysis was selected for this study to identify the frequencies of the different categories obtained from the data. This helps in identifying the significance of each category. Statements were initially read and re-read to identify patterns and coding categories. The codes were derived using a deductive approach from the key categories in the interview guidelines. A hierarchical coding frame was used to organize the codes. The full dataset was coded by one researcher and subsections were checked by two additional researchers. The participants had no further input in providing feedback on the data analysis or findings. The codes from all participants and groups were combined to form the main categories to obtain a data-rich information set of the combined views. The views of separate groups were thus not reported in isolation.

## **RESULTS**

### **Participants**

There were 22 VI golfers at the tournament, of whom nine were B3 players, ten were B2 players, and three were B1 players. Interviews were undertaken with 12 VI golfers aged 39-

84 of whom 11 were male. Of these, there were six B3 players, four B2 players, one B1 player, and a B4 player who was interviewed but not eligible to compete (see Supplementary Materials S3). Their golf handicap ranged from 13 to 45 (mean 38, SD: 11). Four players started golf as VI golfers and 8 had previous golf experience before acquiring their VI. Some golfers had only had one guide, whereas others had worked with numerous guides in the past.

In addition, interviews were undertaken with 10 VI golfer guides (ages 50-82, 9 males) and five novice VI players (ages 38-50 years, 4 males) who were participating in VI golf for the first time. The guides had been involved in blind golf for a range of only a few months to more than 10 years, with a range in experience and the number of tournaments they had competed in.

### **Content analysis**

The interviews generated sufficient data as data saturation was evident during the final interviews, indicating an adequate sample size. The majority of the codes were collected from the VI golfers as all the questions were relevant to them. There were between 13-51 codes (mean: 32, SD: 15) per VI golfer (see Supplementary materials S3), 8-32 codes per VI guide, and 4-15 per novice golfer. The interviews with the novice golfers generated fewer codes as they had very limited experience of blind golf.

Content analysis identified five categories from the combined data related to VI golf, namely: i) benefits ii) facilitators, iii) barriers iv) guiding and v) future developments, as seen in Figure 1. Each is discussed below.

**[Insert Figure 1 here]**

### **Benefits of playing VI golf**

The main benefits identified were: i) giving purpose, ii) personal development, iii) health benefits, and iv) socialization opportunities as seen in Figure 2 and Supplementary materials S4. There were subcategories identified for each category. For giving purpose, the subcategories were being able to compete, inspiring others, providing hope and getting out, contributing to 32 codes. The subcategories for personal development were building confidence, excelling, enjoyment, independence, and the opportunity to travel, comprising of 31 codes. For health, the subcategories were physical health (7 codes) and mental health (5 codes). Socialization consisted of the subcategories making friends, and the opportunity to socialize and play with sighted golfers and family, consisting of 13 codes.

### **The facilitators to playing VI golf**

The main facilitators for playing VI golf were related to the i) accessibility of the game, ii) support, iii) suitable guide, iv) personal skills, v) clubs being accommodating as seen in Supplementary materials S4. The subcategories for accessibility were that their golf skills can improve despite being VI, being an inclusive game, and not needing prior experience, consisting of 15 codes. For support, the subcategories were financial, support from VI golfers, and support from sighted golfers, which included 17 categories. Personal skills consisted of 10 codes between demonstrating the ability to play golf and sighted golf experience. Clubs being accommodating had three subcategories, namely accommodating VI golfers, offering practical help, and being supportive and friendly, which included 29 codes.

### **Barriers to playing VI golf**

The main barriers identified were i) requiring a guide, ii) cost, iii) logistics, iv) practice challenges, v) personal barriers, and vi) the eligibility criteria, as seen in Supplementary materials S5. There were two subcategories with 20 codes for barriers regarding requiring a guide, namely obtaining a guide and having a knowledgeable guide. There were four subcategories for the cost barriers, including the costs of equipment, membership of a golf club, playing in tournaments, and supporting guides to attend tournaments, encompassing 21 codes. Logistical barriers included 22 codes for having opportunities to play and transport whereas practice challenges included slow play, lack of understanding, and treatment by other players, which covered 21 codes. Personal barriers (18 codes) were adjusting to sight worsening, embarrassment, frustration, and mental energy required. The eligibility barriers were unstandardized assessment, the assessment process needing updating, the presence of misrepresentation, and widening the inclusion criteria.

### **Guiding VI golfers**

The categories identified regarding VI guiding were i) becoming a guide, ii) the role of a guide, iii) developing skill as a guide, iv) the benefit of guiding, and v) guiding difficulties (Figure 3 and Supplementary materials S6). The subcategories identified for becoming a guide included being a friend or family member or the VI golfer, an advertisement, and wanting to give back to society, comprising of 21 codes. The role of a guide included enabling play opportunities, setting up, visual elements, and forming a partnership, each with additional subcategories. These additional subcategories were included due to the limited knowledge regarding the role of guiding in the general public. Developing skills as a guide included golfing experience, training, and being instructed by the VI golfer which included 16 codes. The benefits of guiding were playing together, being rewarding, teamwork, travel opportunities, and devoting time, consisting of 24 codes. The difficulties related to guiding

included frustrations, guiding weaker players, not being a golfer, not getting a chance to play, starting as a guide for VI golf, and devoting time to guiding, which included 23 codes.

### **Future developments**

The following future development categories identified included: i) raising awareness ii) widening the pool of players iii) enabling guides iv) logistical help v) getting a fair classification system, vi) improving accessibility vii) sustainable future, and viii) considerations for tournaments as seen in Supplementary materials S7. For raising awareness the subcategories included raising awareness amongst the visually impaired, golfing communities, public awareness, and having taster days, covering 44 codes. The subcategories for widening the pool of players were attracting ladies, young people, more players, and widening the inclusion criteria, consisting of 26 codes. Subcategories for logistical help include coaching, equipment help, and supporting novice players, which included 28 codes. Improving accessibility subcategories were accommodating VI golfers, having longer playing slots, and clubs looking after guide dogs, which included 14 codes. The subcategories for a sustainable future were VI golf becoming a Paralympic sport and the way VI golf is managed, consisting of 9 categories. The subcategories for tournaments included considering abilities, and assisting with practicalities, covering 16 codes.

### **DISCUSSION**

The present study obtained in-depth information regarding the VI golf experiences of a range of VI golfers, their guides, and novice players recently introduced to the sport. The wide range of participants with different backgrounds allowed for diverse perspectives from golfers with different abilities, ages, and visual difficulties. Despite these differences, there were shared experiences regardless of player ability, experience, or level of sight impairment (B1, B2, B3,

or B4). All players for instance wanted the inclusion criteria to be broadened to include those in the B4 category. Players also identified a need to widen the pool of players to include more VI adults, ladies, and younger people. Likewise, the guides that were interviewed had similar broad experiences regarding VI golf guiding, although each partnership varied to accommodate the VI golfer's skills and visual needs. The collective insights gained from these interviews are outlined below.

### **The perspectives of VI golfers and guides on VI Golf**

Although evidence regarding the physical health benefits and well-being of playing golf has been clearly outlined in the literature<sup>9-12</sup>, the evidence related to the benefits of VI golf is still limited. This study is unique in identifying not only the health and mental health benefits but also the psychosocial benefits due to the socialization opportunities VI golf creates. Being able to meet people, make friends and be active together with both sighted and VI persons was a clear benefit of participating in VI golf. It also uncovered that VI golf provides a purpose, the chance to get outside, enjoyment, and very importantly, hope. Playing VI golf results in personal development in that it builds confidence, provides the opportunity to excel at something and compete, and helps the person to develop independence and to travel. The benefits moreover expanded beyond the personal benefit to interpersonal benefits such as being able to inspire others with disabilities. Highlighting these inspirational VI golf stories amongst those with impairment in the media is especially important for people who may find it difficult dealing with losses faced due to a diagnosis of vision impairment. Guides found their roles rewarding in terms of helping the VI golfer play well, being able to play together, being able to travel, and when not in a tournament, developing teamwork. A clear difficulty was developing the required skills to guide, especially if they were not a golfer themselves.

## **The facilitators and barriers to playing VI Golf**

The inclusive and accessible nature of VI golf as a sport for a wide range of ages, abilities, and fitness levels were clear facilitators to taking up golf. Support from guides, clubs, sighted golfers, and personal support networks were key to facilitating participation in VI golf. Such findings were also found in a systematic review by Jaarsma et al.<sup>23</sup> who found social connections, social environment support, and the physical environment were key facilitators. However, numerous barriers to starting and playing VI golf were mentioned. Many of the personal, environmental, and social barriers are similar to those reported regarding general participation in disability sports<sup>15, 23-25</sup>. Ives et al.,<sup>24</sup> for instance also reported various internal barriers such as anxiety about sporting ability and external barriers including transport and other logistical barriers. Organizational barriers worth considering include the cost of playing, being able to afford the equipment, club membership, and costs associated with entering and traveling to tournaments (especially as the golfers often paid costs for their guide). The logistical barriers are also noteworthy, such as finding a guide, getting to golf courses that are rarely served by public transport, and having practice opportunities.

A further barrier was that potential B4 players who were not eligible would seek a different VI sport that allowed for a B4 category. They may be then more likely to continue in that sport when their VI progresses rather than switch to golf. In addition, the less tangible barriers surrounding certain attitudes and interactions on golf courses between sighted and disabled golfers need addressing. These include a lack of understanding of VI and annoyance at the speed of play (which is invariably slower than a normally sighted person) which amplify the

person's experiences of being disabled. Such societal attitudes are major impediments to individuals with disabilities<sup>26</sup>.

### **Future developments for VI Golf**

Continued efforts for further policy and advocacy initiatives to promote VI golf and other impairment sports are encouraged<sup>27</sup>. As emphasized for golf as a sport<sup>15</sup>, VI golf needs to widen participation by targeting younger players, encouraging more female players, and specifically targeting under-represented ethnicities. A future goal echoed by nearly every participant is for VI golf to be included as a Paralympic sport<sup>28</sup>. To enable this, an evidence-based system of classification is necessary specifically for VI golf and work is currently being done to develop this<sup>29-30</sup>.

### **Study Limitations**

These results need to be considered within the limitations of the study. The results reflect those obtained from interviewing a small subset of VI golfers and may not represent the wider VI golfers and guide views. The selection of content analysis, as opposed to thematic analysis, may have resulted in missing context, identifying the surface meaning and not necessarily hidden meanings in statements. Having the interviews before a tournament may have made it difficult for some players to focus on or particulate in the interviews. Their responses may have been affected by their experiences at the tournament.

### **Conclusion**

VI sport participation has numerous benefits and helps VI persons identify sports that are suitable to them and may encourage social interactions and participation in physical activity. The focus should subsequently be on overcoming logistical and organizational barriers as outlined in this study. Support from guides, golf clubs, sighted golfers, and social networks are

paramount in sustaining VI golf participation. Further development of VI golfers into elite golfers and the sustainability of VI golf as a sport rests on removing the identified barriers. As health is ever-changing and can be improved, further empirical studies are encouraged to systematically explore VI golf's contribution to wider physical health, including fall prevention and psychosocial health.

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S2: The semi-structured interview guide

S3: Demographic information

S4. The benefits of playing VI golf

S5: The challenges towards playing VI golf

S6: The role of guiding

S7: Future developments

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### **Author Contribution**

1. PA conceived the study. All authors contributed to the study design and data collection which was performed by EB, NH and PA. EB analysed the data and drafted the manuscript. All authors critically analysed the draft and approved the final version and take accountability for all aspects of the work related to the accuracy and integrity of the publication.
- 2.

### **Competing interests and funding**

The authors declare that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The researchers received funding from EDGA to attend the event.

### **Data access**

All data relevant to the study are included in the article or uploaded as supplementary information. Due to the nature of this research, participants of this study did not agree for their interview transcripts or recordings to be shared publicly.

### **Participant consent**

Those who wanted to participate provided written informed consent and also consented for the interviews to be audio recorded.

## Ethical approval

Ethical approval was granted by the Vision and Hearing Sciences Departmental Research Ethics Panel at Anglia Ruskin University in Cambridge, UK (FSE/FREP/20/988). The study adhered to the tenets of the Declaration of Helsinki.

## Patient and Public Involvement

This research was designed with key VI golf stakeholders from the Northern Ireland VI Golf Association who helped inform the protocol, organize participants for the data collection and provided opportunities during the tournament to enable the interview to take place.

**Table 1: The facilitators towards playing VI golf**

Category	Subcategory	Number of codes	Example
Accessibility	Can improve golf skills	7	So, for me, it's been fascinating to try to continue to play the game without sight. And I'm surprised I'm able to do it. I can still explore the technique of the swing without sight. (VI golfer)
	Inclusive game	5	It's a skilled game, but it's not a fast pace, heavy exercise type of sport that I would feel like I'd not be able to do (Novice golfer)
	No prior experience required	3	The novice players we helped could play after an hour although they had never hit a ball before in their lives (Guide)
Support	Financial support	9	I've been quite fortunate as I've had lots of sponsorship. Just gets me to tournaments and stuff like that. (VI golfer)
	Support from VI golfers	5	At the VI golf society, everybody's out to help everybody else (VI golfer)
	Support from sighted golfers	3	I've got a great fan club that follows what I've done when I'm away at places like this, they send text messages and say keep going, you know, well done, etc, etc. And that, from the club that's from my church, that I go to it from all sorts of people, you know, the family as well, of course. (VI golfer)
Suitable guide	Having knowledge-able guide	10	When you've got a guide that you've got the confidence in, it gives you confidence, you don't

			have to think about anything else other than hitting the ball. (VI golfer)
Personal skills	Ability and/or potential	5	They said you've got a good swing and that's something to build on and that was encouraging to sort of continue playing (VI golfer)
	Sighted golf experience	5	I think the point is that xx (VI golfer) was a good golf player before he lost his sight. So he still has all those skills. All that has changed is that he has lost his sight. (Guide)
Clubs being accommodating	Accommodating VI golfers	3	My guide rang and told the manager that he was going to bring down a couple of VI golfers. And they were so welcoming, it was unbelievable. They also kept the tee time after us free. (VI golfer)
	Offering practical help	15	The club gave us a buggy and thought of everything we needed and I think it was probably the most important thing. We really appreciate it. (VI golfer)
	Being supportive and friendly	11	I've changed clubs and the new club is just unbelievably friendly. It is one of the friendliest courses I've ever played. (VI golfer)

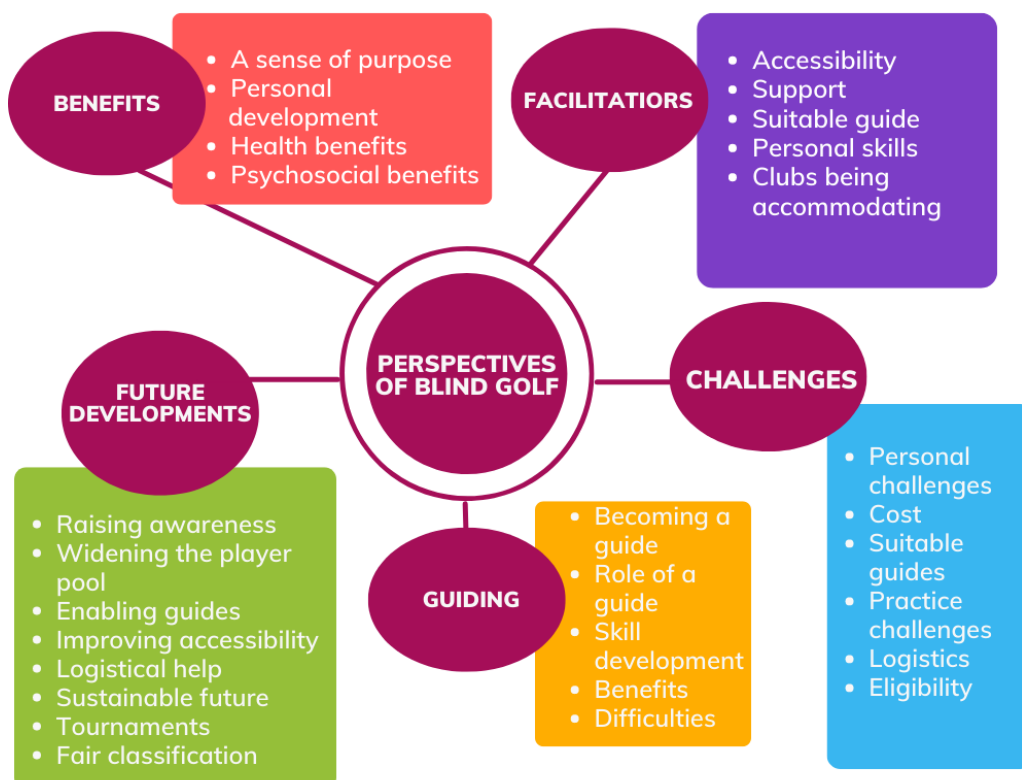


Figure 1

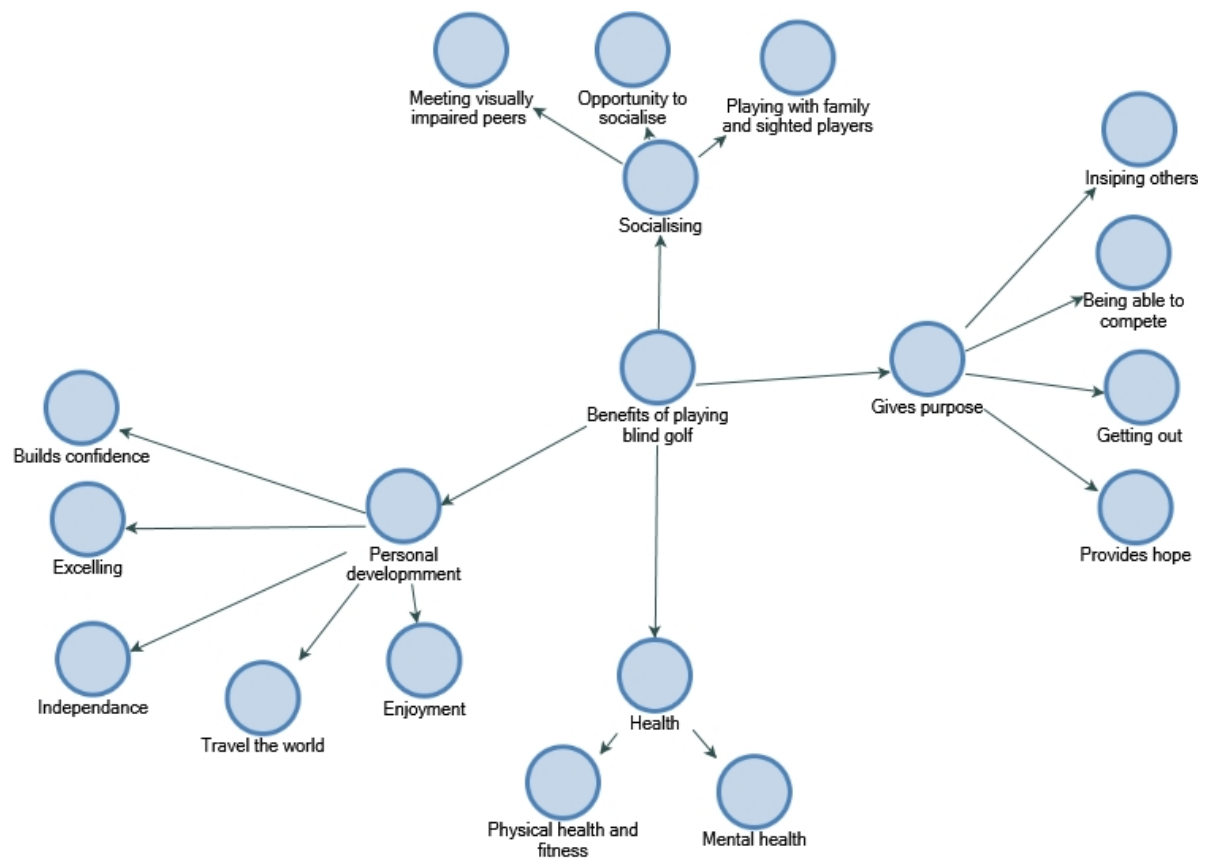


Figure 2



Figure 3