Original article

Understanding alcohol in Swiss disabled sports

A qualitative exploration with athletes with disabilities

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Abstract: *Introduction:* Research on (recreational) psychoactive substance use among individuals with disabilities (IWDs) is still very rare. This study investigates alcohol consumption behaviors, perceptions, and associated risks among IWD engaged in Swiss sports programs of the Swiss disabled sports system. *Methods:* Employing a participatory research approach, we conducted free-listing interviews with 117 athletes (N = 117) from various disability sports groups (physical, psychiatric, and intelligence disabilities each ca. 1/3) to uncover the social, legal, and personal factors that influence drinking behavior in this population. Interviews were analyzed using Thematic Analysis and Nvivo. *Results:* Our findings reveal a dual role of alcohol: while it contributes to social inclusion, it also presents significant risks, especially when combined with medications commonly used by IWDs, a factor very often overlooked by both participants and club leaders. Notably, we observed substantial knowledge gaps concerning alcohol's health impacts and the dangers of mixed substance use ("Mischkonsum"), a growing concern in Switzerland's National Addiction Strategy. Additionally, limited awareness among sports club leaders regarding alcohol-related risks complicates prevention efforts, underscoring the need for tailored educational programs. *Discussion:* This research emphasizes the importance of creating accessible, targeted prevention strategies to foster responsible alcohol consumption and reduce harm within sports clubs, enhancing social well-being and health outcomes for IWDs.

Keywords: Alcohol consumption, disability sports, individuals with disabilities, substance use prevention, participatory research

Introduction

In Switzerland, it is estimated that 1.7 million people live with disabilities, with almost 600,000 of them considered to have severe impairments [1]. The ongoing societal transformation in Switzerland towards greater inclusion, participatory involvement, and increasing acceptance of independence and decision-making freedom for individuals with disabilities (IWDs) presents a significant opportunity for this population to live as equal citizens with the freedom to participate in all areas of society [2, 3]. However, these processes also introduce new risks. Among other things, the decision-making freedom for this group includes the freedom to make choices about substance use in general, including alcohol consumption [4, 5, 6].

Until now, IWDs have rarely been targeted by alcohol prevention efforts [6]. These efforts were often managed through institutional or caregiving oversight, frequently resulting in restrictive prohibitions [4, 7, 8]. Currently, there are limited resources and tools adapted to this group that can inform and raise awareness about the dangers and risks of alcohol, promote conscious and controlled consumption, and build consumption competence. Even fewer tools are available to provide strategies for avoiding alcohol consumption or promoting low-risk drinking, tailored to the group members' situation, resources, and abilities (e.g., educational level, digital and health literacy, access to information channels, wording, etc.) [6, 9].

This lack of information and practical tools does not only impact IWDs directly but also affects their immediate environment, including friends and family in private settings, caregivers and supervisors in work and employment contexts, and colleagues in leisure and sports

activities, who may lack the necessary knowledge to provide appropriate support [10, 11].

Regarding the last point, three nationwide organizations provide a wide range of physical activities and sports programs for this population in Switzerland: PluSport, the umbrella organization for disabled sports; Procap, the association for disabled persons (which provides sports programs alongside other activities); and Wheelchair Sports Switzerland [12, 13]. PluSport is the umbrella organization for disabled sports in Switzerland, supporting inclusive and adapted sports opportunities for individuals with physical, intellectual, psychiatric and sensory disabilities. It coordinates most local sports clubs and camps, organizes training programs, and provides coaching support to promote physical activity and social integration for IWDs. Procap is the largest self-help organization for individuals with disabilities in Switzerland, advocating for equal rights and social participation. It provides legal and social support services, accessibility consultation, and financial aid guidance for its members. In addition, it also offers sports programs but only partly and just in a few regions and primarily for individuals with intellectual disabilities. Wheelchair Sports Switzerland is the umbrella organization for wheelchair users engaged in sports, offering specialized programs for individuals with spinal cord injuries and other mobility impairments (wheelchair users). It facilitates competitive and recreational sports, from grassroots initiatives to elite-level competitions, and collaborates closely with rehabilitation centers and hospitals. PluSport and Wheelchair Sports are co-founders of Swiss Paralympic – providing elite para-athletes an opportunity to participate in highly competitive sports.

Nearly 700 voluntary sports groups offer regular programs in Switzerland, such as weekly activities and over 150 sports camps that typically last one to two weeks. These programs cover nearly every type of sport, allowing more than 20,000 people to participate in the diverse offerings [14, 15]. These are voluntary and not tied to any care institutions. In addition to these main organizations, other organizations offer activities for people with disabilities, but usually in a significantly less systematic and not scaled-up way. Some of these organizations have movement and sports programs intended only for their members – not accessible from someone outside.

While physical activity and sports are essential for physical and mental health [16–24], there is also a clear positive correlation between athletic level/physical activity level and alcohol consumption in regular sports [25, 26]. Additionally, the socialization aspects of club life can significantly increase the likelihood of consumption [27, 28, 29, 30]. Furthermore, inclusion in both disability sports clubs and non-disability sports clubs has been growing exponentially for years – partly because this is a requirement of the Swiss sports system [31]. However, this can lead to IWDs being exposed to consumption settings that were previously untypical for them, or consumption habits may be introduced into the setting of disability sports, where they can spread.

Compared to IWDs who do not engage in (team) sports, those involved in club settings may experience stronger social pressures to participate in alcohol-related activities, particularly as sports environments are often structured around team events, celebrations, and social gatherings and this in the setting where alcohol consumption is meanwhile also accepted for individuals with disabilities (vs. restrictive societal prohibition before). Additionally, individuals with disabilities are more likely to use prescription medication, which increases the risk of harmful alcohol-drug interactions. Furthermore, they might be less educated in strategies regarding low-risk alcohol consumption or have enough health or substance use literacy and be less able to access it since the present prevention measures are not tailored to their needs and abilities. Unlike non-disabled athletes, who may have better access to general alcohol prevention programs, IWDs in sports often lack tailored guidance addressing their specific medical and social risks as well as their needs and barriers. Understanding these dynamics is essential to developing appropriate preventive interventions within sports settings.

At the same time, the professional press repeatedly reports on the increasing need for advice and intervention regarding problematic consumption patterns among IWDs [6, 32]. This increase is associated with the independence of those affected (e.g., gradual transitions from residential to open or independent living arrangements or participating in regular sports clubs) [4, 33, 34]. However, this openness and inclusion in society also make it easier for this target group to access alcohol and other addictive substances. At the same time, it becomes increasingly important to strengthen the risk awareness and consumption competencies of IWDs to prevent problematic consumption. However, without knowing the current situation regarding alcohol consumption in the context of disability sports, as well as the actual level of awareness of the target population on this issue, it might be very challenging to develop appropriate prevention programs and address the risks of alcohol abuse in this target group.

While this study involves interviews with individuals with disabilities, its primary focus is on disabled sports as a specific setting rather than on differences between individual impairments. In Switzerland, disabled sports constitute a distinct environment with unique structures, accessibility challenges, and cultural norms. The key concern is not the heterogeneity of disabilities but rather the shared experience of participating in sports under conditions shaped by disability inclusion policies and accessibility barriers.

This focus is particularly relevant in the context of prevention and inclusion, as there is an increasing effort to transition individuals with disabilities from segregated sports settings to mainstream grassroots sports. While individuality plays a role in both inclusion and substance use behaviors, it is essential to consider this specific vulnerable population as a whole rather than breaking it down into impairment subgroups.

This approach aligns with public health research on other vulnerable populations, such as the LGBTQIA+ community, individuals with HIV, asylum seekers, and autochthonous populations with low educational levels. In such research, the setting itself is often the unit of analysis rather than individual differences, acknowledging that the shared context shapes health-related behaviors [35, 36].

Given the lack of research on substance use among individuals with disabilities in Switzerland, particularly in the context of alcohol consumption, this study takes a top-down approach that examines the setting as a whole rather than focusing exclusively on individual differences.

Aims

The present study explores various aspects of alcohol consumption and understanding of consumption-related risks among IWDs participating in the structures of the Swiss disability sports system from their point of view. The following research topics and questions were formulated for this purpose:

1. Concept of alcohol and risks understanding:
   - How do IWDs interpret the term "alcohol"?
   - How do IWDs perceive the associated dangers and risks?

2. Understanding of problematic alcohol consumption:
   - What do IWDs understand by a problematic pattern of alcohol consumption?
   - What features or criteria do IWDs use to identify such patterns?

3. Influence of social environments and sports clubs:
   - To what extent does the presence of alcohol consumption in social environments and sports clubs influence the drinking behavior and attitudes of IWDs towards alcohol?

4. Coping strategies for alcohol problems:
   - What strategies and measures do IWDs employ when confronted with an alcohol consumption risk (irresponsible of their own or someone else's)?

5. Knowledge of support services:
   - What knowledge do IWDs have about access points and support services in the area of alcohol prevention?

Materials and methods

The study was conducted as part of two master's thesis projects in psychology at the University of Zurich. It is one of two studies examining the understanding of alcohol consumption and associated risks within voluntary sports programs for IWDs in Switzerland. Both studies are the project's first step to developing a novel prevention tool tailored to the needs and specific circumstances of disabled sports. The current publication does not include a separate study focusing on the perspectives of trainers in these voluntary sports programs [37].

Due to the lack of comparable studies or publications exploring the perspectives of IWDs on this topic, a cross-sectional qualitative design utilizing free-listing interviews was chosen.

Setting

The present study utilized a participatory research approach involving an *expert group* of eight participants with various impairments from sports programs (intelligence disability = 2, schizophrenia = 1, schizophrenia & borderline intelligence = 1, severe depression = 1, wheelchair = 1, two sides amputation of lower extremity = 1, autisms & cerebral palsy = 1) and eight coaches from various sports groups for IWDs (one wheelchair). The detailed characteristics of experts are presented in Table 1.

These experts and the research team actively contributed to developing the main research topics, research question, designing the interview, analyzing the collected data, and interpreting the results. This methodology ensures the integration of diverse voices and perspectives throughout the research process [38, 39].

Participants

Recognizing that IWDs are a heterogeneous group, we aimed to reach three distinct subpopulations in equal proportions: individuals with intellectual disabilities (1/3), individuals with physical disabilities/wheelchair users (1/3, equally split between wheelchair users and those with other physical disabilities), and individuals with psychiatric disorders (1/3). Based on prior research in the field and supported by expert literature, we targeted interviewing

Table 1. Demographic characteristics of experts

Characteristic	Experts	
	$n_{participants}$ = 8	$n_{coaches}$ = 8
Sex		
Male	4	5
Female	4	3
Education Level		
Basic vocational training	2	
Vocational education	4	4
University (BA, MA, PhD)	2	4
Disability = Yes	8	1

Note. Full sample (n = 16).

approximately 30–40 individuals from each subgroup, aiming for a total of at least 100 interviewees [40, 41, 42, 43, 44]. The selection was made from disability sports clubs (66%) and camps (33%) in German-speaking and French-speaking Switzerland. Furthermore, participation was limited to no more than five interviewees from the same club or camp. These criteria ensured the diverse involvement of individuals with different disabilities and from various regions and sports contexts.

It should be noted that for the present study, participants at the mass sports/grassroots level were invited to participate. Professional and elite para-athletes were not included, as their activities and everyday life take place in a completely different setting. Moreover, this specific setting has already been investigated in previous studies [45, 46, 47, 48].

Interviews

The interviews were conducted by a psychology graduate student from the University of Zürich for the German-speaking participants and a PhD student (psychologist) from the University of Bern for the French-speaking participants. Both interviewers had prior experience in conducting interviews and received additional training specific to free-listing interviewing techniques. The interviewers did not have any personal familiarity with the participants.

Interview questions

The free-listing interview guide was developed through a participatory and iterative co-production process between the expert and research teams. Initially created in German, the interview guide was translated into French by a native speaker (professional and educated translator). A bilingual French-German sports scientist verified the back-translation, with any discrepancies being discussed and resolved.

The interview comprised two main sections. The first section included ten questions derived from the research questions conducted during a free-listing interview. The second section, consisting of eight questions, gathered demographic information such as age, highest educational attainment, living and work situation, consumption of other substances, and use of prescription medications. One question specifically addressed participants' alcohol consumption and included the AUDIT-C [49]. All interviews were tested regarding understandability with the representatives of specific subgroups.

Recruitment

In the beginning of May 2023, 113 sports clubs and 15 sports camps were contacted via email by the respective coordinators at PluSport, Procap, and Wheelchair Sports, inviting them to participate in the study. The current number of available camps was limited due to seasonality. The email introduced the study and requested that the coaches of the individual sports groups inquire about their participants' interest in a short interview on the study topic. If participants expressed interest, the coaches were instructed to contact the interviewers directly to schedule an on-site interview. The data collection phase occurred from May 8, 2023, to July 11, 2023. The interviews needed to be conducted before the Swiss summer holidays, as most club activities were scheduled to take a summer break from mid-July to the end of August 2023.

Procedure

The interviews were conducted individually in a separate room at the same time as the respective sports sessions. Before participation, all attendees (not just those interested in interview participation) were thoroughly informed about the study's objectives, procedures, and the intended use of the collected data. This approach ensured that spontaneous participants could also take part in the interviews. Written consent was obtained prior to the beginning of each interview. The first section of the interview guide was audio recorded. The audio records were deleted after the transcription and anonymization. The second section of the guide was assessed using the paper-pencil method by the interviewer and analyzed separately. As a token of appreciation for their participation, the participants received a compensation of 10 Swiss Francs (approximately 10 US Dollars).

Analysis

The thematic analysis was conducted using the NVivo software program (Version 14) from QSR International.

We used applied thematic analysis as described by Guest, MacQueen, and Namey [42]. The coding process followed the transcription of all interviews and subsequent familiarization with the transcribed content. A coding framework was established based on the review of 10 selected interview transcripts. Four parent codes (a. statements on knowledge; b. statements on consumption; c. statements on strategies; d. statements on other substances) were developed from the data and refined through subcodes and adjustments during an iterative process. This framework was examined and revised, where required, through collective discussions with the research and expert team members before its application to the remaining interview data. Two external reviewers with expertise in NVivo and thematic analysis who were not involved in the initial coding stages reviewed the final codes. Any slight discrepancies discovered were deliberated within the team, and appropriate adjustments were implemented if necessary.

Results

Out of the 113 clubs and 15 camps contacted, groups from 21 clubs and 4 camps agreed to participate. One camp and 28 clubs explicitly declined participation, citing reasons such as not belonging to the study's target group or a lack of interest among their members in the topic (the types of clubs, camps, sports, or subgroups of IWD didn't differ from the clubs agreed to participate). The remaining 54 clubs and 8 camps did not respond to the invitation. Additionally, 10 clubs expressed interest in participating, but either a sufficient number of interviews had already been conducted or time constraints prevented further inclusion. Finally, two camps answered after the camp was already finished.

Demographics and own substance consumption

A total of 117 participants with a median age of almost 40 years (*M*=39, range 16–79) were involved in the study. The interviews lasted between 10 and 15 minutes. The sample comprised German-speaking (n=96) and French-speaking (n=21) individuals. Most participants were affiliated with PluSport (n=76), followed by Wheelchair Sports (n=20) and Procap (n=21). Most came from sports clubs (n=97), while some participated in sports camps (n=20). Participants exhibited a variety of impairments, including intellectual (n=43), physical (n=38), and psychiatric disorders (n=36) [based on self-assignment or groups composition]. Additional demographic information is presented in Table 2.

Table 2. Demographic characteristics of participants

Characteristic	$n_{interviewees}$ (n/N %)
Sex	
Male	73 (62%)
Female	44 (38%)
Education Level	
No degree	4 (3%)
Compulsory schooling	30 (26%)
Basic vocational training	34 (29%)
Vocational education	27 (23%)
Advanced vocational education (federal)	13 (11%)
University (BA, MA, PhD)	9 (8%)
Living situation	
Alone	32 (27%)
With roommates	17 (15%)
With parents	18 (15%)
With partner	22 (19%)
Supported institution	28 (24%)
Employment status (%)	
Unemployed	21 (18%)
Unable to work	3 (3%)
Employed	44 (38%)
Protected workplace	49 (42%)

Note. Full sample (N = 117).

Approximately ¾ of the participants (n=89, 76%) reported consuming alcohol. A closer examination using the AUDIT-C questionnaire revealed that 10 participants exhibited risky alcohol consumption. Additionally, 28 participants showed signs of an increased risk for alcohol-related disorders, according to the AUDIT-C assessment.

Regarding the consumption of other substances, 30 participants indicated that they consumed substances in addition to alcohol. Among them, 27 individuals used tobacco and/or nicotine, while three individuals consumed cannabis. Of the participants, 74 reported using prescription medications cause of prescription by their healthcare providers. Among these, 35 were aware that they should avoid alcohol consumption due to potential interactions with their medication. No other drugs have been reported.

Results related to parental codes questions

In order to provide a comprehensive summary of the results, we have structured our findings into four key themes inspired by the parental codes identified due to the analysis: a. *statements related to perception and knowledge*; b. *statements related to consumption and environmental factors*; c. *statements on strategies*; d. *statements on other substances*. Quotes have been translated into English for the purpose of the present article.

Perception and knowledge

Perception

In total, 73 participants expressed negative associations with alcohol, as the following quotation highlights:

> I think alcohol does not lead to good outcomes for people. ... but often I see that under the influence of alcohol many bad decisions are made, or people put themselves in danger, or make stupid decisions. Or it just often doesn't end well. (DETN7602)

At the same time, almost a comparable number of participants reported positive opinions about alcohol, shared by a total of 64 participants. Many of them associated alcohol with social occasions and gatherings, as the following example shows:

> The term alcohol is often used when you hang out or something, then you drink a beer or something like that. In that sense, I don't find it negative. When you sit with colleagues or friends and have a beer. (DETN7405)

However, both positive and negative associations were related to heterogeneous topics as presented in Table 3.

Ok to drink

Discussing the insights regarding the question "How do you know if it is okay to drink?" participants showed varied perspectives on the topic. A significant number, totaling 40, referred to legal aspects related to alcohol consumption. Age restrictions were highlighted (n=22), indicating that drinking is permitted only from the age of 16 or 18. The importance of avoiding alcohol consumption in the context of road safety was also emphasized (n=19), highlighting the need to avoid drinking and driving.

> Normally, in stores, there is a logo on the cans or bottles you buy that says +18 or -18, and it's a bit like video games. You can drink from the age of 18, and I have no problem with that. (FRTN0302)

At the same time, some (n=18) participants stated that there are certain places and situations where alcohol consumption is not allowed, such as at work or during sports activities, highlighting this way that external factors determine the possibility of alcohol consumption.

Next to restrictions, interviewees (n=36) identified situations or places where it would be acceptable to consume alcohol. Some participants (n=15) gave more general answers about a specific situation's proper mood or atmosphere. Some answers were, however, more specific, and interviewees mentioned that drinking was acceptable for them in social settings (n=16) or during leisure time (n=9). Some cited evenings as an appropriate time for drinking (n=7).

> Yes, you can drink alcohol at events. Birthday parties, after an awards ceremony, when you've won something. (DETN2705)

Twenty-one participants (n=21) also shared their personal experiences with alcohol consumption that influenced their drinking habits. Some discussed whether they were currently taking medications (n=9), while others emphasized that they live a sober lifestyle (n=6).

Finally, a quarter of the participants (n=32) considered their own limits and how well they knew their bodies when deciding whether to drink alcohol. They emphasized the importance of knowing how much they can handle. It was also frequently mentioned that one should drink moderately (n=29).

> Yes, for me, it's always okay as long as you have it under control. Especially that you don't overdo it. (DETN1001)

Harmless alcohol consumption

When answering the question of what constitutes a harmless level of alcohol consumption, participants also provided specific quantities. Most indicated that consuming alcohol approximately several times a month or once a week would be considered harmless. However, some interviewees saw no risks in drinking every day. Furthermore, some participants seemed to be strongly oriented by peers or external unconfirmed references answering this question (n=7) as the following example shows:

> So what I've heard saying is that one glass of wine per day is actually healthy. (DETN2701)

A summary of the responses can also be found in Table 4.

Indicators for problematic drinking

Talking about the indicators for problematic drinking behavior, nearly half of the participants (n=63) identified loss of control over drinking as the most commonly cited indicator of problematic drinking behavior. This was particularly evident in excessive and uncontrolled consumption (n=43), as illustrated by the following quote:

> Yes, I think it's when you just can't stop, and then it's more and more and more. (DETN2701)

Some participants (n=37) also mentioned the craving for alcohol as a feature of problematic drinking behavior, with sometimes clear personal admissions illustrating the situation:

> I can't do without it anymore. I need it in the morning to start the day. I can't do without it. (DETN0702)

Another aspect of problematic drinking behavior mentioned by 43 participants was excessive behavior and behavioral changes, including aggressive behavior (n=20) and inappropriate communication (n=18). Physical signs

Table 3. Frequencies of reported negative and positive associations with alcohol and their sub-themes

Topics and subtopics	$n_{interviewees}$ (n/N %)	Topics and subtopics	$n_{interviewees}$ (n/N %)
Negative associations	73 (63)	Positive associations	64 (55)
Health problems	28 (24)	Sociability	27 (23)
Drunkenness	27 (23)	Delicious food	23 (20)
Addiction	18 (15)	Party/Celebrations	14 (12)
Unhealthy	14 (12)	Something tasty	13 (11)
Legal drug	8 (7)	Fun & enjoyment	11 (9)
Bad experiences	8 (7)		
Drug interaction	2 (2)		

Note. Full sample (N = 117).

Table 4. Harmless consumption

Frequencies	$n_{interviewees}$ (n/N %)
Never	2 (2)
1× per month	20 (17)
2–4× per month	56 (48)
1× per week	43 (37)
2–3× per week	32 (27)
At the weekend	10 (9)
4 times or more per week	2 (2)
(almost) every day	11 (9)
Depends on the opinion of peers	11

Note. Full sample (N = 117).

of problematic drinking behavior were also relevant, as cited by 57 participants. These included unsteady gait (n=29), the smell of alcohol (n=13), and tremors (n=12). Psychological or physical health problems were also mentioned, though by only 12 respondents each.

Alcohol consumption and environmental factors

The analysis shows that alcohol consumption in the social environment is the common practice for most participants, with 101 people affirming this constellation. Various aspects of this topic were identified: Most mentioned that alcohol is consumed with family (n=63) or friends (n=50). Alcohol consumption in the social environment mainly occurs in the evenings (n=32) and on weekends (n=32). The primary reasons for this are social gatherings (n=39) or enjoying a good meal (n=18).

Regarding the question, "*Is alcohol consumed in your recreational sport/sports club?*" Fifty-two (n=52) participants confirmed that alcohol consumption plays a role in the context of their recreational sports or sports club activities. Alcohol consumption related to sports activities mainly occurs after training sessions (n=37). Some participants also mentioned tournaments (n=10), where they gather over a weekend, eat together, and occasionally drink. Most participants reported drinking one glass (n=35) in this context, often to toast or accompany a good meal.

> Not before sports. I wouldn't know anyone who does that. For example, after training, we go to the restaurant for dinner, and then you might have a beer or something, or sometimes at a tournament, you might have a beer. That's just how it is. (DETN6902)

On the other hand, 68 participants indicated that alcohol consumption does not play a role in their recreational sports or sports club activities. For them, the training ends, and they go directly home without spending much time with other participants. Some individuals (n=22) were unsure if others might go for drinks after training, as they themselves were not present. Others stated that alcohol consumption is prohibited in their sports club (n=11).

> Here in the sports club, it is not allowed. (DETN8505)

Finally, fifty-three (n=53) participants reported knowing someone who exhibits problematic drinking behavior. Most respondents (n=30) mentioned one affected individual, while some reported knowing multiple individuals (n=20). These individuals with problematic drinking behavior were primarily found within the participants' social circles (n=51), with family members (n=17) being the most frequently mentioned relationship. Problematic alcohol consumption within sports clubs was described as relevant in only three cases (n=3). Among the individuals identified with problematic drinking behavior, excessive consumption (n=25) was predominantly recognized as the main issue.

> I have encountered individual cases. One person spontaneously comes to mind, where I really feel it could be problematic. (DETN0702)

In contrast, 64 participants stated that they did not know anyone in their environment who exhibited problematic drinking behavior.

> Not really. All my friends from the past drank in moderation. Now they have all stopped. (DETN1004)

Strategies to deal with alcohol consumption and alcohol support services

When considering a potential problem related to alcohol consumption, either for themselves or someone close to

them, the majority of interviewees indicated they would seek external help (n=71). However, half of these respondents stated they would seek assistance within their social environment (n=33). No specific services were mentioned by the interviewees. A similar situation was reported regarding actions they would take if they suspected someone else had an alcohol problem; most respondents indicated they would attempt to discuss their concerns (n=46) and strongly recommend seeking professional help (n=39). However, none were able to specify concrete steps to address such a challenge.

Regarding alcohol support services, a large number of respondents (n=71) stated that they have "no knowledge" of specific alcohol support services. Some mentioned that they had heard of such services but did not have detailed information about them. However, some (n=14) noted that it would be easy to obtain this information nowadays using the internet, as one interviewee said:

> No, but if someone really wanted to get off that path, they would certainly find something with a Google search where they could get help. (DETN7205)

Among those who had knowledge or ideas, various contact points for alcohol support were mentioned. These included general mentions of addiction counseling centers or addiction clinics (n=19), as well as more specific organizations such as the Blue Cross (n=8) or the general practitioner (n=13), which can provide information and support. One person commented as follows:

> You can always go to your general practitioner. They can refer you to such places. (DETN0201)

Other substances in the environment

Regarding the perception of consumption of other substances in the environment, the results suggested that the environment of IWDs who participated in the study is almost drugs free with only a few interviewees (n=7) mentioning that substances other than alcohol, nicotine/tobacco, or cannabis are present in their surroundings. All other participants denied that this is topic is relevant.

Cannabis seems to be an issue for around 20% (n=24) of respondents. However, only two persons made a connection to their sports groups. In the absolute majority of cases, cannabis consumption was discussed regarding the social environment (n=23). This substance was mainly mentioned by wheelchair athletes and mostly in connection to its medicinal use, as the following statement shows:

> As for cannabis, I know it is relatively common among wheelchair users. But that's often for medical reasons. Because I personally have no problem with cannabis. From my point of view, it could even be legal. Especially for us, it helps a lot with spasticity and cramps. In my eyes, it's a natural substance, but I can't use it now because it's on the doping list, as I'm on the national [anonymized] team. In my social environment, it's not a big topic. I know that in [name of specific rehabilitation center], people try it a lot, and it is considered doping by us. So it's out of the question. (DETN7505)

Finally, nicotine consumption (mainly smoking) was considered to be present in the environment of IWDs. More than ¾ of interviewees (n=89) talked about this being an issue in their surroundings, especially in the social environment. The rate in connection with sports groups or clubs was lower, but even there, almost 40% (n=44) considered it as an issue.

Discussion

The study provides valuable insights into alcohol consumption and related perceptions among IWDs participating in Swiss sports programs. To the best of our knowledge, this is the first study to delve into the perspectives of IWDs regarding alcohol consumption within the context of sports clubs in Switzerland. The findings reveal a complex interplay of social, legal, political, and personal factors influencing alcohol consumption within this population.

This study provides insight into alcohol consumption patterns among IWDs specifically within the setting of organized sports. Previous research has shown that participation in sports is associated with increased alcohol consumption in participants, often linked to team culture, socialization, and post-competition rituals [27, 28, 29, 30]. However, little is known about how these factors manifest in disability sports settings. Our findings indicate that while IWDs in sports are exposed to similar drinking cultures, unique disability-related factors - such as medication use, accessibility of prevention programs, and inclusion dynamics - play an additional role in shaping alcohol-related behaviors

Participants exhibited both negative and positive associations with alcohol. Many participants recognized the dangers of alcohol, particularly in terms of health problems, addiction as well as the immediate impact of alcohol (e.g., bad experiences and drunkenness). However, adverse social outcomes, as well as long-term problems (e.g., social isolation), seem not to be associated with alcohol use. Further, interactions with medication were hardly ever associated with alcohol use, indicating a lack of awareness of the risk of problematic interactions, especially considering that IWDs often depend on regular medication intake.

Positive associations range from social experiences, such as gatherings and celebrations, to the simple enjoyment of the taste of alcohol, indicating that alcohol also plays a role in social participation and inclusion.

The duality of negative and positive associations highlights the need for nuanced prevention messages that address both the risks and the social contexts of alcohol consumption. These messages should be adapted to the current level of awareness and knowledge, emphasizing moderation and self-awareness in a way that is accessible to individuals. At the same time, they should introduce new and engaging information to encourage informed decision-making.

Alcohol consumption in social environments, including sports clubs, was found to be prevalent among participants. While some individuals reported that alcohol was an integral part of post-training or tournament gatherings, others noted that their clubs explicitly prohibited alcohol consumption. However, this issue is not limited to participants alone; there is evidence that club leaders themselves may also have issues with alcohol consumption, which they may not fully recognize or address. This lack of awareness can create a problematic culture within sports clubs, where alcohol use is normalized, even among those in leadership positions. A previous study suggests that club coaches must be vigilant about their own alcohol use, as it may undermine prevention efforts and create mixed messages about responsible drinking behavior [37].

This variation indicates differing cultural norms and policies within sports organizations, reflecting broader societal attitudes toward alcohol. It also aligns with previous research suggesting that club life plays an essential factor in the likelihood of alcohol consumption [27, 50, 51, 52, 53]. To ensure effective alcohol prevention, club leaders must be well-informed and act as role models for responsible alcohol behavior. Addressing potential knowledge gaps in leadership regarding alcohol risks could improve overall club culture and contribute to more effective prevention strategies.

The findings reveal further that while many participants have a basic understanding of what constitutes harmless alcohol consumption, there are still gaps in knowledge. Most participants consider moderate drinking, such as consuming alcohol once a week or during weekends, to be harmless. However, it is concerning that a small portion of participants believe that daily or near-daily alcohol consumption is harmless. This misconception indicates a need for better education on the risks associated with frequent alcohol use.

Regarding indicators of problematic drinking behavior, participants showed awareness of signs such as loss of control, cravings, and physical or behavioral changes. Many could identify signs like excessive consumption, aggression, and physical symptoms such as unsteady gait and tremors. While this awareness is positive, the recognition of problematic drinking behaviors varied, suggesting that not all participants are fully equipped to recognize early warning signs. Further psychological and social indicators, such as mood swings or social withdrawal, were rarely mentioned, suggesting a mostly biological/physiological understanding of problematic drinking and a lack of awareness of other dimensions.

The findings indicate that while most participants would seek external help for alcohol-related problems, either for themselves or others, knowledge about specific support services is limited. Although the majority of interviewees expressed a preference for seeking external help, most would rely on their social environment and were unable to specify any particular services. Many respondents acknowledged having little to no knowledge of specific alcohol support services. However, some recognize the potential to find information online easily. This suggests that while awareness of the need for support is present, concrete knowledge about available resources and how to access them is lacking.

This study provides valuable insights into the complex attitudes toward alcohol consumption among IWDs in Swiss sports programs. While participants show awareness of the risks and recognize some signs of problematic drinking, gaps in knowledge about safe consumption levels and specific support services remain. The dual role of alcohol in social inclusion and potential harm underscores the need for targeted education and clear policies within sports clubs to promote responsible drinking and support those at risk.

Another alarming point is the lack of awareness regarding the potential interactions between alcohol and medication. Only two participants explicitly mentioned the risks associated with mixing alcohol and prescribed drugs, despite many participants regularly relying on medication. This is especially concerning when considering the increasing prevalence of "Mischkonsum" (mixed use of substances), which is meanwhile a focal point in Switzerland's National Addiction Strategy for 2025-2028. The combined use of substances such as alcohol, tobacco, and psychoactive drugs can exponentially increase health risks, particularly for individuals with existing vulnerabilities, like those dependent on regular medication [54]. Addressing "Mischkonsum" through targeted education and prevention measures is crucial, as it represents a growing challenge in managing substance-related harm. Clearer information on the dangers of substance interactions, particularly in vulnerable populations, must be integrated into future prevention strategies to reduce these risks effectively.

The study identifies a clear need for targeted alcohol prevention efforts tailored to the unique contexts and needs of IWDs. This need arises due to several factors that differentiate IWDs in sports from the general population in terms

of alcohol-related risks and prevention. First, the social and structural conditions of disability sports settings differ from mainstream sports, with many IWDs engaging in disability-specific organizations where socialization patterns and alcohol exposure may be shaped by inclusion dynamics. As inclusion in mainstream sports settings increases, exposure to new drinking cultures may also influence alcohol-related behaviors among IWDs. Second, the high prevalence of comorbidities and prescription medication use among IWDs presents additional health risks, particularly in relation to alcohol-drug interactions, which are often overlooked in conventional prevention programs. Third, the lack of awareness about specific support services and resources among participants suggests a gap in accessible and effective prevention and intervention strategies. Fourth, access to standard alcohol prevention efforts may be more limited for IWDs due to structural barriers such as inaccessible program formats, lack of targeted awareness campaigns, and the absence of disability-specific risk communication. Finally, the variation in social influences, such as team culture, peer pressure, and integration into non-disabled sports, plays a role in shaping alcohol-related behaviors in ways that are not adequately addressed by current prevention strategies. Taken together, these factors highlight the necessity of designing prevention initiatives that specifically account for the realities of IWDs in sports rather than applying generalized approaches that may not sufficiently address their unique risks and experiences.

Besides alcohol consumption, the study highlighted that smoking seems to be a considerable issue in the population, given that every fourth interviewee was a smoker and ¾ of participants reported being in intercourse smoking surroundings. However, the ad-hoc literature on this issue showed that scientific research on this topic in this population is lacking as well [55]. Furthermore, other substances, even not frequently consumed by the participants of the present interviews, seem to be present in the surroundings of IWD, such as cannabis, especially for wheelchair users. These results, however, indicate that the substance use phenomena in this population is not only limited to one substance but needs a holistic approach to be addressed by prevention.

Strengths

The participatory research approach, involving an expert group of IWDs and coaches, ensured that the research questions and interview design were grounded in the lived experiences of the target population, enhancing the study's relevance and validity and so following recommendations from the field [38, 39]. The qualitative design, utilizing free-listing interviews, allowed for an in-depth exploration of participants' understanding and experiences, capturing nuanced insights that might be missed in quantitative surveys. The diverse sample, including individuals with intellectual, physical, and psychiatric disabilities from various sports contexts, strengthens the generalizability of the findings to a broader population of IWDs engaged in sports activities.

Limitations

First of all, the study might induce an overall unstated opinion that all alcohol is automatically connected to risky or harmful or addictive behavior. It is important to note that moderate and responsible alcohol consumption does not necessarily pose a problem for all IWDs. The risks associated with alcohol use in this group depend on multiple contextual factors, including medication interactions, accessibility to information, and social influences within sports settings.

This study has several limitations. The cross-sectional design limits the ability to establish causal relationships between alcohol consumption and its influencing factors. The reliance on self-reported data may also introduce biases related to social desirability or recall. Furthermore, even when developed with experts from the participating groups and checked for understandability in each group, it is not guaranteed that some participants fully understood the questions given their specific disability. Furthermore, while diverse, the sample may not fully represent Switzerland's broader population of IWDs. The limited response rate from sports clubs and camps could introduce selection bias, potentially excluding individuals with specific disabilities or those less comfortable discussing alcohol-related topics. At the same time, nearly half of the clubs and camps active at that time responded to the invitation, with an even split between those willing to participate and those declining. This indicates no significant difference between those who chose to participate and those who did not. Additionally, no differences were observed between clubs, camps, groups, or target populations.

Another point is the exploratory qualitative nature of the study, these findings provide initial insights into alcohol use among IWDs in or around sports but are not meant to be generalizable, even using a sufficient number of participants and applying maximum variation sampling among sports, disabilities, regions, languages, camps, clubs, etc. Future research should employ larger, more structured samples and mixed-method approaches to validate these findings and explore subgroup differences.

A key limitation of this study is also the difficulty of making direct comparisons between alcohol consumption patterns in IWDs engaged in sports and those in the general sports population. Beyond general assumptions, limited

research exists on the use of alcohol and other psychoactive substances in disability sports and actually in this population in general as well, making it challenging to determine whether the observed patterns are unique to this group (or country) or align with broader trends in sports culture. The few existing studies on substance use and disability focus on clinical or rehabilitative contexts rather than on individuals actively participating in structured sports environments. Furthermore, IWDs are frequently underrepresented in mainstream sports research, which may contribute to a lack of targeted investigations into their substance-related behaviors.

Conclusion

This research highlights the critical role of social and environmental factors in shaping alcohol consumption behaviors among IWDs in Swiss sports programs. By addressing the identified gaps in knowledge and support, stakeholders can develop effective strategies to promote responsible alcohol use and enhance the overall well-being of this population. Future research should focus on longitudinal studies to better understand the dynamics of alcohol consumption and the long-term impact of prevention interventions. In addition, future studies could investigate by using larger, more representative samples and structured methodologies whether there are differences within this heterogeneous target group in terms of alcohol consumption and understanding of its risks, allowing for more targeted and individualized prevention strategies. Finally, new paths in the prevention and reduction of harm risks of alcohol consumption should be developed, taking into account the specific needs of the subpopulations. However, it needs to be mentioned that within the present project a new awareness brochure based on the study results as well as videos to address individual needs will be developed and tested in the field.

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History
Received November 8, 2024
Accepted February 27, 2025
Published online April 25, 2025

Conflict of interest
Corina Salis Gross is a member of the Swiss Federal Commission on Addiction and Prevention of Non-Communicable Diseases (EKSN). Michael P. Schaub is the president of the Swiss Foundation for Alcohol Research. The other authors have no conflicts of interest to declare.

Publication ethics
The study was approved by the Ethics Committee of the Faculty of Arts and Social Sciences of the University of Zurich (approval no. 23.04.06).

Availability of materials
The interview guidelines in German and French are available upon reasonable request from the corresponding author. According to the informed consent, we promised the participants that the interview transcripts will be stored according to the data protection requirements by ISGF and will not be published/uploaded anywhere with open access. This was important because we interviewed a very sensitive group. It was necessary to accept this obligation to ensure the interviewees spoke freely.

Funding
This study was partly supported by a grant from Swiss Alcohol Prevention Fonds ("Alkoholpräventionsfonds") to the ISGF for the project "Inclusion in Sports: Alcohol Prevention with Individuals with Disabilities" ("Inklusion im Sport: Alkoholprävention mit Menschen mit Behinderungen (ISAMB") under the number "142005710 / 322.8-3/54". The funding institution had no influence on the design of the study or the collection, analysis, and interpretation of data, or the drafting of the manuscript. The opinions expressed and arguments employed herein do not necessarily reflect the sponsor's views.

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