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The impact of the covid-19 pandemic on the physical activity and health and well-being of children and adolescents in Europe

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ABSTRACT

In what ways and to what extent has the Covid-19 pandemic affected the lives of children and young people in Europe by limiting their access to physical education and other types of physical activity, including sport? A review of the available, reported, evidence-based knowledge is provided with regards to physical activity and motor behaviour; psycho-social well-being; as well as effects on mental well-being. From a literature review, the main insights are extracted and placed in a wider policy context, including as regards EU-wide priorities regarding sports policy, health-enhancing physical activity (HEPA) as well as public funding, including from the EU budget.

KEYWORDS

covid-19 (coronavirus) pandemic; confinement; youth; physical inactivity; sport; mental health; psycho-social problem; sport policy; health-enhancing physical activity (HEPA)

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INTRODUCTION

Since March 2020 the COVID-19 pandemic has been affecting sport and education systems across Europe. The pandemic has sparked a considerable amount of scholarship across Europe (e.g. Mittag & Naul, 2021; Naul, 2021; Kovacs et al., 2021) and other parts of the world (Biswas & Banerjee, 2020; Sriwijitalai, 2020). Debates on the effects caused by the pandemic on sport have taken place in wider fora (e.g. Grix et al., 2021; Pedersen et al., 2020), including such aspects as tax breaks accorded to professional sports (Ličen, 2020) at a time when amateur and community sports were struggling even harder, and with more limited financial reserves, while PE in schools have been hit particularly hard (O'Brien et al., 2020). But while there is every reason to ask what the future of global sports governance will look like (e.g., Sugden & Sugden, 2020), issues closer to home may be more pressing, such as the ability of European children and young people to cope with the drastic drop in physical education and school sport via school closure and lockdowns for any offer of physical activity in sport clubs.

While relying heavily on a literature review as its main methodological feature, our paper retains a strong and constant focus on the effects of observed reductions in physical activity and sport, it is not solely concerned with the causality. Besides asking how much is known about the physical activity/physical education rollback in COVID-19 times, its causes, stages and outcomes up until now, its especial – and original – contribution lies in attributing findings to three main categories of physical activity and motor behaviour; psycho-social well-being; as well as effects on mental well-being. As such, beyond the literature review, the contribution is also (and especially) a conceptual one.

To make this contribution, our paper aims to provide a review of some European COVID-19 studies with the objective of comparing these ongoing threats for physical activity and physical education with related impacts on health development in school-aged children and adolescents. Our discussion will be grounded in three domains of health: the physical-motor domain, the psychosocial domain, and the cognitive-mental domain. The central items of study are in how far a former active lifestyle before the pandemic changed into a more sedentary lifestyle within pandemic time or after the first wave of COVID-19 (April to June 2020) and to what extent sedentary items of development became even stronger within or after the second wave of COVID-19 (October 2020 up to February 2021)? It will be analysed to what extent the pandemic has reversed efforts to improve young people's participation in sport and physical activity and decreased the status of their physical fitness, motor performance and social well-being as opposed to merely reinforcing equally observable trends in their diminution. How can COVID-19 evolutions in motor behaviour, psychosocial and mental health and wellbeing compare with each other, and which policy priorities can be deducted from these findings? To what extent can it be said that, at the beginning of the pandemic, consistent and measurable policies were on track, with which we can compare the ensuing rollback, and which (sport) policy implications might be deducted from the findings?

CHILDREN'S AND ADOLESCENTS' INVOLVEMENT IN PHYSICAL EDUCATION, PHYSICAL ACTIVITY AND SPORT DURING THE COVID-19 PANDEMIC

1. Physical activity and motor behaviour

The German Child and Youth Sport Report is a recurrent publication. The editors of the Fourth Report (Breuer et al., 2020) touched briefly upon the (possible) implications of the Corona pandemic, including by referring to one German (Mutz & Gerke, 2020), two European (Pietrobelli et al., 2020; Zenic et al., 2020) as well as one American study. Regarding the likely effects of the pandemic on children and young people, they point to a retarded development of sport-discipline-specific competences proper to entire cohorts, a regressive practice of sport and physical activity and increased social equality in access to these (Breuer et al., 2020, p. 9). "Overall, physical inactivity observed pre-pandemic in children and young people in Germany is likely to have increased, at least for the time being, while the motoric and health-related effects remain to be assessed" (ibid., p. 10).

The Fourth Report thus misses an opportunity to engage in an argument regarding cohort-specific inactivity effects of the pandemic while, definitely, the editors' concerns regarding increased social inequality and the risk of further inequality deserve attention. Even without access to reliable empirical data, this scenario remains within the remit of reasonable expectations, given that schools and sport clubs have been closed for more than a year, since many children and young people who would habitually profit from physical education and extra-curricular sport activities offered at sport clubs are unlikely to have been physically socialised in schools and sport clubs. Extended closures of schools and sport clubs have led to a drastic increase in physical inactivity, while home-schooling practices have led to a marked rise in sedentary screen time. Some regional reports regarding the wider lifestyle effects of the pandemic further document unhealthy lifestyles, including in diets, as some studies reveal.

An early study conducted by Mutz & Gerke (2020) consisted in an online self-reporting survey ($n = 1001$) of young people and adults in Germany (age 14–64). During the early weeks of the first lockdown (March–April, 2020), respondents were asked to identify their motor behaviour before as well as 2–3 weeks into the pandemic, at a time when all schools and sport clubs had been shut down rigorously. For constructing a "leisure time sport & exercise" profile (LTSE), four sample groups were analysed, representing respondents without any LTSE engagement as well as those with a reduced, retained or even enhanced engagement. The non-engaged profile increased from 36% (pre-pandemic) to 59.9%, while 31% of respondents reduced their LTSE behaviour variously. The group reporting 2 h LTSE per week dropped from 10.3% to 6.7% and thence to 3.6%. Retained LTSE levels were reported by 27% and increased LTSE by 6% of respondents, the latter chiefly through outdoor activities (running, cycling) as well as indoor workouts. On balance, already during its first weeks, the pandemic provoked a significant LTSE diminution, although less so among the younger respondents (age 14–29) as compared with older ones.

A comprehensive study of children (age 4–10) ($N = 514$) and young people (age 11–17) ($N = 750$) was conducted on the basis of the third wave of the MoMo (*Motorik Modell*) study of the Karlsruhe Institute of Technology (KIT) Wunsch et al., 2021) with a view to establishing causal links between motoric activity, screen time

and ‘Health Related Quality of Life’ (HRQoL) scores. Based on pre-pandemic scores (2018), the study aimed at making predictions regarding indicators during the pandemic (April–May 2020). Among four initial hypotheses, only one could be validated: ‘The exploratory analysis revealed a positive effect of HRQoL pre-Covid-19 on PA within-Covid-19, especially in younger children and in females’ (Wunsch et al., 2021, p. 9). While vindicating previous studies affirming links between HRQoL and continued sports practice, the study also triggered surprising insights regarding the level of pre-pandemic physical activity in both sample groups, during the early weeks of the first 2020 lockdown, at a time when all schools and all sports clubs were closed without exception. In the 4–10 age group, as to meeting the target of 60 min daily physical activity on weekdays, boys reported an increase from 4.74 to 5.39 and girls even from 4.62 to 5.27 days! Similarly, the 11–17 age group reported a surge from 3.90 to 4.08 in boys and from 3.55 to 3.96 in girls. According to these data, daily motoric activity is supposed to have improved during the pandemic, with no access to school sport or sport clubs. Whereas these results are frankly astounding and at variance with the findings of most other studies (see below), we should remain vigilant as to the hypothesis of a generalised physical activity increase during the pandemic. While physical activity at home, in gardens and backyards may have shown a slight increase, it is doubtful if such activity can compensate for the weekly loss of 2–3 hours of PE (90 to 135 minutes) at school, of two extracurricular sports activities and of up to 2–4 hours (90 to 180 minutes) of additional club sport. By aggregating figures from various sources, we may postulate a significant net reduction in time dedicated to physical activity, which is unlikely to have been compensated by activity of “habitual physical activity” like playing outside, doing gardening etc. with a lower cardiovascular intensity compared with physical exercise. Where Wunsch et al. (2021) come closer to other studies, is when reporting minimum daily screen time in both age groups, especially in the child sample (age 4–10), where figures almost doubled in boys (from 76.65 to 143.73 min per day), against a less steep increase in girls (from 74.61 to 124.86 min). While the young people (11–17) reported a less dramatic growth, their pre-pandemic values had been considerably higher, albeit more so in boys (from 233.10 to 299.42 min a day) than in girls (from 186.13 to 250.25 min).

Another study published by Schmidt et al. (2021) assessed the outcome of lockdown for organised sport activities, compared to participation rates in self-organised sport activities and changes for “habitual physical activities” (HPA) like playing outside, gardening, housework and with the inclusion of changes in children’s and adolescent’s screen time. This study is one of the very rare longitudinal studies up today (up to 85% of identical sample of $n = 1,322$ boys and girls between 4 and 17 years old), which compared the status of physical activities at three different measurement times: before Corona (t1), during the first wave of COVID-19 (t2, April–May, 2020) and during the second wave of Covid-19 (t3, November 2020–February 2021).

The timeload for organised sports declined from 28.5 min per day (t1) via zero minutes in the first lockdown wave (t2) where all schools and sport clubs were locked and 3.7 minutes during the second lock down (t3). Self-organised sport activities were measured with 6.6 min per day (t1) via 24.3 min in the first wave (t2) and 9.9 min in the second wave (t3). Compared to the organised sport activities,

self-organised sport activities did increase between t1 and t2 (in spring time), but decreased in t3 (due to winter time). Nevertheless, a small higher amount of daily minutes for self-organised sport still existed within the second wave (t3) compared to pre-Corona time (t1). However, if both types of sport activities are accumulated, there is an important decrease between t1 (35.1 minutes per day), down to t2 (24.3 min per day) and even more down at t3 (13.6 min) which means in total a reduction by more than 60% compared to pre-Corona times. The same decline was measured for HPA between 59.1 min a day at t1 compared to only 22.4 minutes at t3, also more than 60% down.

On the other side, data of measured screen time in minutes per day did increase extremely from 133.3 min in pre-Corona times more than 60 minutes in the first wave (t2, 194.5 min) and an another extended increase in the second wave (t3, 227.5 min) which means a total increase in Corona time by approx. 95 minutes.

We have no reason to assume that children and young people in Germany would be significantly better off than their European peers, given that children and young people's participation in sports and physical activity more generally tends to match social household indicators, including parents' socio-educational and socio-economic status, and their sport affinity (Niessner et al., 2020). Access to sport and physical activity tends to reproduce inequalities already present in society, though the exact patterns applicable to the new 'Corona Generation' of 2020 and 2021 remain to be assessed.

Insights gained from the above-mentioned German studies are complemented and expanded by drawing on studies from other European countries covering children and young people's experience of confinement. Orgiles et al. (2020), for instance, reported the results of a survey of 1,143 parents in 94 Italian and 87 Spanish cities as to the effects of the pandemic on their children (age 3–18). The trend in motoric behaviour was regressive across all degrees of intensity. The group practising 30 min a day shrank from 13.6% pre-pandemic towards a mere 5.6%, while the group practising 60–90 min a day diminished from 28% to 9.3%. The group with less than 30% screen time (understood broadly as 'media time'), plummeted from 22.1% to 3.4%, while the size of those with 120–180 min daily increased from 5.5% to around 30%. Approximately 86% of parent respondents deplored that 76% of their children lacked social contacts, while 52% suffered from boredom, 31% from loneliness and 30% from anxiety. These findings are, by and large, confirmed by a smaller study from Verona (Italy), based on examinations of 41 overweight children as regards their behavioural profile before (May–June 2019) and during (March–April 2020) the pandemic (Pietrobelli et al., 2020). Reported sports time dropped from 3.60 to 1.29 h a week, while screen time rose from 2.76 to 7.61 h a week and the consumption of crisps and fizzy drinks rose to levels representing twice their pre-pandemic levels. (For another Spanish-Italian study, see Universidad Miguel Hernández & Università degli Studi di Perugia, 2020). Possible consequences from the combined trends in physical activity, screen time and diets can be deduced from the annual student monitoring conducted in Slovenian schools. Based on data collected in 100 schools (age 7–15), Starc (2020) reported that (in June 2020), compared with the corresponding age cohort of the previous year (2019), 69.5% of girls and 67.8% deplored a loss of physical fitness, while 56.8% of girls and 58.4% had put on weight. In standardised physical fitness tests, the 2020 cohort

achieved significantly lower scores than the 2019 cohort had obtained one year earlier, especially among boys and girls aged 7–9.

A very large and first comparative study between countries in Europe was conducted by Kovacs et al. (2021). They included 8,395 students between 6 and 18 years (mean age 13 years, 47% boys, 57.6% urban, 15.5% of the sample stayed in self-isolation of COVID-19). The sample included countries with high COVID cases (Russia, Spain, Italy, Germany, France) and lower COVID cases (Flanders, Portugal, Romania, Hungary, Poland, Slovenia). Data collection was done in the first Corona wave (May, June 2020). Items of measurement were: structured schedule of physical activity daily, percentage of students who meet the 60 min norm of daily physical activity, and percentage of students who meet the norm of screen time of 2 h or less a day.

The final outcome of the study was that 66.4% of the sample group remained in structured routines (min 38.4% Russia, max 69.3% Germany) during the first corona wave. Important and significant differences occurred for online teaching in physical education. In total 56.6% of the students received online PE in the first wave of Corona (min 2.1% Germany, max. 79.8% Slovenia). The norm of 60 min physical activity a day was achieved by 19% of the total sample, again significant differences of achievement were measured cross-culturally (min 7.5% Italy, max. 26.7% Slovenia), and an excess of more than 2 hrs screen time on daily level was measured for 69.5% of all students, whereas the screen norm was only achieved by 30.5% (min 20.4% Italy, max. 53.8% Germany).

The authors of the study concluded that there existed a “prevalence of insufficient physical activity and unhealthy screen time” (Kovacs et al., 2021, p. 1) during the Corona wave and “consistent daily routines are important in helping children maintain healthy active lifestyle in pandemic situation” (ibid.).

2. Effects on psycho-social wellbeing

The significant impact of Covid-19 pandemic on young people’s social life and psycho-social well-being is also reflected in various studies. While regular physical activity behaviour changed perceptibly as a result of the pandemic, serious adverse effects have also been reported regarding the psycho-somatic behaviour of children and young people. Based on a study of the effects of the first wave of the pandemic, COPSYPY (Corona-Psychology) (COPSYPY I), Ravens-Sieberer et al. (2021) reported from a follow-up study conducted six months later, drawing on data from the second wave (COPSYPY II). This in turn allowed for longitudinal comparisons to be drawn between the psycho-somatic behavioural profile of children and young people pre-pandemic (t1), during the first wave (t2) as well as during the second wave (t3) (Ravens-Sieberer et al., 2021). The study distinguished two age groups, representing children (age 7–10) (t2 n = 546; t3 n = 503) and young people (age 11–17) (t2 n = 1,040; t3 n = 1,077), with an average age of 12.25 years (t2) and 12.75 years (t3) respectively. Using various measurement instruments (KIDscreen, SDQ, HRQoL questionnaire, etc.), the sample remained 85% stable from t2 to t3, suggesting that a veritable longitudinal cut can be made. A striking finding is a noticeable increase in low ‘health-related quality of life’ (HRQoL) scores, ranging from 15.3% pre-pandemic over 40.2% during the first to as much as 47.7% during the second wave. Concomitantly, high HRQoL waned from 16.6% pre-pandemic over 5.8% during the first towards 5.7% during the second wave, pointing to perfectly reciprocal developments: low HRQoL scores have tripled

while high HQRoL values have shrunk towards one third of their initial level. Reported stomach aches (from 21.3% over 30.5% to 36.4%) and headaches (from 28.3% over 40.5% to 46.4%) match this trend closely, as do complaints of anxiety, depressions and general psycho-somatic unease in children and young people. The psychosocial dimension of health have been picked up in the reports of some umbrella organisations. OECD (2020) research showed that social distancing, restrictions and quarantine measures resulting from the Covid-19 pandemic caused stress, anxiety, isolation (an issue addressed early on by German Research Foundations et al., 2020) and loneliness among the youth across Europe.

The OECD (2020) study also found that young adults (aged 18–29) have experienced higher levels of distress compared to other age groups since the onset of the pandemic. Extant socio-economic inequalities seem to have been exacerbated, especially when lockdown measures forced schools to deliver all classes in a remote, virtual format, when one early Dutch study found that most pupils had made little or no progress while studying at home (Engzell, Frey & Verhagen, 2020). Long-term effects are hard to guess, though one psychological study published in *The Lancet* concluded by surmising that ‘psychological impact of quarantine is wide-ranging, substantial and can be long lasting,’ even if this ‘is not to suggest that quarantine should not be used’ (Brooks et al., 2020). It simply means that we know very little about the likely long-term effects, especially outside the somatic ambit. Early on, a combination of the pandemic and the protective measures adopted to contain it were taking their toll on people’s somatic and mental health and well-being (Peters et al., 2020) and it will take quite some time before the full implications are known.

The Covid-19 outbreak magnified pre-existing social inequalities in resources, resulting in an unequal impact on youth from different social strata. The vulnerable and at-risk young people such as marginalised, migrant, homeless and LGBTI+ youth have been affected by the pandemic significantly more than the general population of young people. The studies have identified an additional gender divide in terms of women and girls being impacted more by Covid-19 pandemic compared to men and boys (EU-Council of Europe youth partnership, 2020). Existing inequalities are widening because of the disproportionate impact of the Covid-19 pandemic on young people from disadvantaged groups that are already in a precarious situation, i.e. outside the education, training and labour market. They are the ones who can easily be overlooked if governments do not pay specific attention, as they tend to be already in a situation without even their minimum requirements being met on health, education, employment and well-being (Eurofound, 2021).

Social inclusion and youth mental health therefore need to be addressed through comprehensive and sustainable measures that could diminish the negative impact of the pandemic on young people. The response to Covid-19 must be shaped in a way that protects the human rights of all young people that form a key element in an inclusive recovery and the achievement of the Sustainable Development Goals (SDGs) (UNFPA, UNICEF 2020). To avoid exacerbating intergenerational inequalities and to involve young people in building societal resilience, governments need to anticipate the impact of mitigation and recovery measures across different age groups, by applying effective governance mechanisms and developing policies that reach vulnerable and marginalised youth, including migrants and refugees, youth living in rural areas,

adolescent girls and young women, indigenous and ethnic minority youth, young persons with disabilities, young people of different sexual orientations and gender identities and homeless youth (OECD, 2020a).

3. Effects on mental wellbeing

Recent findings reveal a decline in mental wellbeing in the EU as a whole, and an overall increase in negative feelings, such as tension and feeling downhearted, especially among youth due to restrictions on their mobility and social interactions (Eurofound, 2021). Research shows that school closures during Corona waves have affected young people's mental well-being as teachers and classmates can provide social and emotional support. The Covid-19 pandemic furthermore posed a threat to young people's mental health by worsening existing problems and curtailing access to school-based mental health services (OECD, 2020). Another effect of the Covid-19 outbreak was reflected in the increased need for support, coupled with delays and unmet needs of students (32%), due to disrupted provisions of public services, such as essential healthcare and mental healthcare (Eurofound, 2021).

The overall impact of the Covid-19 pandemic on young people's social and economic rights negatively affected the mental health of nearly two-thirds of the youth population in Europe. The main factors affecting young people's mental health include high levels of uncertainty and unhappiness with changes in work, education or living circumstances. This is especially prominent among those who have lost their job. Almost two-thirds of people (64%) in the youngest age group (18–34 years) are at risk of depression, and their average mental wellbeing is worse compared to people aged 50 years or over. An increase in depressive feelings and lower levels of life satisfaction was recorded particularly among younger groups. Their relationships with parents also appear to be negatively affected (European Youth Forum, 2021), while parents too have been negatively affected as regards their mental wellbeing (Huebener et al., 2021). Young women's mental health and wellbeing was notably worse than young men's. Across age and gender groups, the lowest mental wellbeing in spring 2021 is registered among women aged 18–24 and women aged 35–44 though the largest drop in mental wellbeing occurred among men aged 18–24 (Eurofound, 2021).

Apart from statistics, the qualitative data confirmed that mental health and wellbeing was still a significant concern for young people, who described feeling lack of freedom, lack of inner peace, feeling out of control, and a general change of mentality as the pandemic progressed. A key issue affecting several young people was unhappiness with being forced to move back to the family home because of a decline in economic circumstances that was often linked with a loss of independence. This was particularly problematic for LGBTQIA+ youth (European Youth Forum, 2021).

The Covid-19 counter-measures affected young people more than the virus itself. As a result, young people became a new vulnerable group with possible long-term developmental, health and mental health consequences. Although the scale of the Covid-19 impact is not fully predictable, the three-way relationship between education, employment and mental health is crucial to emphasise. The research shows that work instability and educational uncertainty are key sources of stress and wellbeing issues for young people in Europe. These combined impacts may affect young people's lives well beyond the end of the Covid-19 pandemic, and they are likely to worsen

their employment and educational prospects in the future (European Youth Forum, 2020).

Therefore, studies on long-term impact are needed, as well as better insight into the (in) effectiveness of the proposed measures, particularly aiming to tackle the mental health and wellbeing of (vulnerable) young people in Europe. Research indicates that there is no substantial Europe-wide pandemic response, but rather limited responses from national policymakers on young people's mental health. Some examples that are identifiable are not targeted at young people, and in many cases are only partially relevant to them. For instance, while national mental health phone helplines are offered to provide support to citizens dealing with isolation and the mental health problems in Cyprus and Portugal, additional mental health support for frontline caregivers is offered in Belgium and Ireland. Focus on strengthening mental health in remote medical services and campaigning against domestic violence was run in Iceland (European Youth Forum, 2021).

To reduce the long-term consequences for young people of the Covid-19 pandemic, it is essential that policymakers increase access to mental health and wellbeing support for young people. The policy measures need to go beyond an approach to mental health and wellbeing focused solely on medical intervention, and include support aimed at addressing the socio-economic determinants of mental health and underlying stress factors. This should be delivered through a range of settings such as schools, non-formal education providers, youth organisations and online (European Youth Forum, 2021).

DISCUSSION

Returning to the research questions formulated at the outset of the present papers, developments driven by the 2020–2021 Covid-19 (Coronavirus) pandemic appear to have led to a considerable decrease in the physical activity and physical education of young people. A drop in motor behaviour (despite some isolated cases of higher reported individual scores regarding some types of physical activity) seems to have led to a deterioration of both psycho-social and mental health and well-being. Although more research is needed to establish the exact nature and amplitude of these evolutions, it seems safe to establish a general physical activity/physical education rollback which, in turn, would compare unfavourably with the developments up until 2021, as identified by Mittag & Naul (2021) against the benchmarks of the policy goals of the last 17 years. For recovery from the threats to physical activity, physical education and sport within the waves of COVID-19 pandemic, Mittag and Naul (2021) stated on COVID-19 in their commissioned sport policy review to the European Parliament:

“Many former European promotion initiatives of HEPA and grassroots sport participation were put on hold or even scaled down due to the pandemic, leaving youth at even greater risk of establishing inactive lifestyles, as well as social isolation and behavioural problems in family life. Therefore, a COVID-Recovery Fund (CRF) on school-based HEPA and local sport club-based physical activities is necessary to adopt and rebuild the foundations of healthy active lifestyles among young people in the post-COVID era” (Mittag & Naul, 2021, p. 85).

POLICY IMPLICATIONS

In this context, a distinction needs to be made, between traditional (medals-led, hosting-focussed) sports policy and a health-enhancing physical activity (HEPA) policy aimed at ensuring access to sport and physical activity for all citizens (Kornbeck, 2020, 2021a, 2021b). Where a traditional sports policy approach would tend to earmark funding for specific legal entities, regardless of their activities, a HEPA approach would rather let the funding follow specific activities, distributing funds through open calls (Kornbeck, 2020, 2021b). In the European Union, where access to sport has become a relevant benchmark outside the formal sport and HEPA policy fields, applying it to such areas as competition and state aid law, a certain HEPA soft-law doctrine may now be recognised (Kornbeck, 2018) after the COVID threats, while the implementation of the 2013 Council HEPA Recommendation, as per the two implementation reports published by the European Commission (2016, 2019), leave some question marks as regards the impact of that policy (Kornbeck, 2021a). In February 2021, the European Parliament (2021) voted a Resolution identifying youth-relevant spending as a priority for the execution of credits provided under the Next Generation EU (Covid-19 recovery package) programme (Kornbeck, 2021b). It will be important to ensure that this actually happens, so as to avoid a repetition of a frequent preference for infrastructure projects over spending on (young) people.

CONCLUSION

A collection of COVID-19 studies on children's and adolescent's physical activity, physical education and sport in the first two waves of Corona development documented reduced time allocation of PA, reduced development of fitness and motor skills compared to pre-Corona time in different EU-countries. A decline in former achievements of the daily PA norm (60 minutes) were reported with a parallel high increase of daily minutes of screen time. In some surveys this ambivalent trend was reported with weight gain, higher intake of density food and sweated beverages. As one of the most mentioned outcomes of changes to psychosocial health during Corona time, social isolation with reduced face to face communication for peers at school and within sport clubs and sleep problems were mentioned by parents for younger children.

Collected data of Covid-19 indicators for physical activity, social health and well-being became during the second COVID wave after Oct. 2020 even worse than in the first COVID wave with data collections in April–June 2020. Some first longitudinal developments between pre-COVID-19 time and within waves of COVID documents the continuous breakdown of an active lifestyle. Motor development, particularly in coordination and aerobic endurance capacity declined in COVID-19 waves. Significant psychological impact of social distancing and quarantine measures on young people causing stress, anxiety and loneliness.

School closures have negatively affected young people's mental well-being as teachers and classmates can provide social and emotional support.

Declines in mental health and wellbeing across Europe were reported with a very strong impact of the pandemic on the living conditions of mainstream youth, even

stronger for youth at risk; increased mental health symptoms and decreased psychological well-being among youth.

COVID-19 is more negatively impacting on women and girls' mental health and well-being than for boys and men and in general the pandemic tends to magnify pre-existing social inequalities in human resources.

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An investigation of the economic impact of small-scale sports events: The case of a medium-sized city in the Western United States

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ABSTRACT

The current study was designed to bridge a sporting event typological and geographical gap by investigating evidence of the economic impact of five small-scale sports events in the Western region of the United States. Utilizing the input-output economic impact equation established by the Sports Event and Tourism Association, data was collected from participants and spectators through on-site intercept surveys. Data was analyzed using the traditional calculations for economic impact as well as offering real-time economic impact data using a sporting event intercept survey procedure. Results showed small-scale events impact the economy of their host city positively, mainly by filling hotel rooms that would otherwise have gone vacant. Results also show that real-time economic impact data may prove more reliable to future decisions of cities hosting events. Previous research on mid-sized cities hosting sporting events as well as the current research related to small-scale sporting events proves more beneficial than large-scale sporting events in large-sized cities.

Given the information from the current study, local sports commissions and political figures may effectively advocate hosting small-scale events to their public using the justification of economic impact (traditional or real-time). Additionally, stakeholders of such events should consider maintaining or expanding the current inventory of small-scale events throughout the calendar year.

KEYWORDS

sport tourism; sports event typology; sports commissions

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INTRODUCTION

Individuals spend their free time in a variety of ways, one being travel for leisure opportunities. Between 2009 and 2015, the global leisure travel industry grew 65% to nearly \$263 billion annually (Hungenburg et al., 2016). Ijspeert and Hernandez-Maskivker (2020) stated more than 1.4 billion people traveled leisurely all over the world in 2019. These figures find the tourism industry with tremendous economic possibilities (UNWTO, 2019). Included in the leisure travel industry is the sector of sport tourism. According to the Sports Events and Tourism Association (Sports ETA), located in the United States, their 2014 state of the sport tourism industry report noted \$8.96 billion in visitor spending. The next year reported a more than 5% increase to \$9.45 billion (Sports ETA, 2021a). Years later, an expansion to a similar report found “Sports travelers, event organizers, and venues spent \$45.1 billion in 2019, which generated \$103.3 billion in business sales when including indirect and induced impacts” (SportsETA, 2021a, p. 4).

Sport tourism is defined as, “all forms of active and passive involvement in sport activity, participated in casually or in an organized way for noncommercial or business and commercial reasons, that necessitates travel away from home and work locality” (Daniels et al., 2004, p. 180). This definition expands a sport tourist(s) travels at least 50 miles (approximately 80 kilometer) outside of his or her home area to participate in, watch, or experience sport in any other way (Kurtzman, 2005). Duglio and Beltramo (2017) suggested there are three types of sports tourists: (1) active-based tourists (those who actively participate in an event; e.g., athletes), (2) event-based tourists (those who watch events; e.g., spectators), and (3) nostalgia-based tourists (those who want to see sports-related sites).

Traveling 50 miles or more from a single location offers a multitude of options for consuming a variety of sporting events ranging in size from mega (cf. Gratton et al., 2007; Wan & Song, 2019) to small-scale (cf. Duglio & Beltramo, 2017; Ritchie & Adair, 2004). Duglio and Beltramo (2017) suggested a five-step typology to describe sport tourism events adapted from several authors that have studied sporting events in the past (Gratton et al., 2000; Wilson, 2006). The A through E typology Duglio and Beltramo (2017) developed separates events into categories A (i.e., mega-events) through E (small-scale events) and other various sizes of events in between. Previous research focused heavily on Type A events and found that these mega-events are often detrimental to their host areas economically, socially, and environmentally (cf. Agha & Taks, 2015, 2018; Chernushenko, 1996; Hall & Hodges, 1996; Hiller, 2006; Lee & Taylor, 2006; Smith, 2009; Wan & Song, 2019). Those authors that conducted research on smaller size events continue to suggest that additional research is needed, especially events in the Type E category.

Local and regional sports commissions play a large role in planning and executing sport tourism events. According to Gibson (2012), “Sports commissions may work at the state, county or city levels; they may be part of a convention and visitors bureau or may comprise a stand-alone non-profit agency” (p. 161). The Sports Events and Tourism Association (Sports ETA), formerly known as the National Association of Sports Commissions (NASC) was founded in 1992 with the goals of educating, providing networking opportunities, and protecting “the integrity of the

sports events and tourism industry” (Sports ETA, 2021b). The founding membership was comprised of 15 established sports commissions around the United States. This membership has grown in size to include 1,783-member organizations (Sports ETA, 2021c). The extensive number of sports commissions in the United States dedicated to developing competitions and attracting sports tourists to their communities shows that there is an interest in hosting sports events across the country. Although there is an appeal to hosting sporting events, there is limited research focused on the impact of small-scale events in specific locations around the U.S. (Dixon et al., 2013; Saayman & Saayman, 2014).

The economic impact is a primary factor governments review when assessing the performance of sports commissions. Crompton and McKay (1994) described the economic impact of an event as, “... the net economic change in a host community, excluding non-market values, which results from spending attributable to the event” (p. 33). Agha and Taks (2018), simplify this understanding by stating, “Economic impact is new spending in a local economy less any expenditures that have left the local economy due to the event in question” (p. 474). Expenses to bring a sport organization to a town or city are a part of an existing budget set forth by the sports commission. Moreover, local events already have established sport facilities for hosting events such as high school football games, local parks and recreation soccer tournaments, or youth baseball and basketball leagues. To determine economic impact, accurate data needs to be collected from the area in which a sports commission operates. Previous literature related to economic impact from medium-sized cities and small-scale sporting events (Type E) in certain regions of the United States is growing, but still limited. This gap in the literature has relegated local sports commissions to using Sports ETA’s general economic impact model for its calculations rather than a generalized economic impact model for other types of events that may be hosted by the tourism bureau (e.g., automotive trade show).

The model and equation employed in the current research set forth by the Sports ETA multiplies average direct spending by the number of sports tourists and days stayed in the area and then apply an economic modifier based on economic factors from the specific geographical location being examined. Sports tourism is a global phenomenon with a wide array of research found in different geographical regions of the world. Research has been conducted on sports tourism in a variety of areas including ultra-long distance running in South Africa (McKay et al., 2019), mountain biking in Malaysia (Yusof, 2010), and football/soccer in Scotland (Allan et al., 2007). Countries such as these have different economies and cultures that may challenge the ideas of an economic impact than in the United States. Therefore, the current study explored the question: What is the economic impact of small-scale sports events in a medium-sized city in the Western United States? This research will help the local sports commissions in the United States understand their economic impact more accurately and add to the existing body of knowledge created by previous authors in this field. Similarly, parallel sports commission type organizations in other countries may view the current research as helpful as it offers real-time data procedures that may prove beneficial in the decision making process for hosting sporting events in their area. The next section of this paper will focus on research conducted in the United States with notations on international research on the same topic to provide perspective.

LITERATURE REVIEW

A recent body of literature has focused on the economic impact of small-scale sporting events (cf. Csobán & Serra, 2014; Daniels & Norman, 2003; Daniels et al., 2004; Duglio & Beltramo, 2017; Gibson et al., 2012; Gibson et al., 2003; Taks et al., 2015). Several authors have provided a conceptual framework for building this area of study by including typologies of events through tourism (cf. Duglio & Beltramo, 2017; Gratton et al., 2000; Wilson, 2006). Further studies have taken these typologies and explored the economic impact of single events (cf. Csobán & Serra, 2014; Daniels & Norman, 2004; Duglio & Beltramo, 2017) as well as multiple events (cf. Daniels & Norman, 2003; Gibson et al., 2003; Gibson et al., 2011; Taks et al., 2015). While these studies have contributed to the body of knowledge relating to the impact of small-scale sports events, the existing literature can be strengthened by the addition of studies completed throughout a range of geographical locations to continue to support previous literature, but also offer specific experiences in each city or region explored. The current study seeks to lend support to existing research on small-scale sports events by studying such events in a medium-sized city in the Western United States.

TYPOLOGIES OF EVENTS AND THE NEED FOR ADDITIONAL RESEARCH

Not all sporting events are created equal, with the type (i.e., specific sport), size, and location of the event contributing to their classification. Gratton et al. (2000) built the discussion around the need to clearly define sporting events with Wilson (2006) building the foundation of event typologies. Gibson et al. (2012) formulated the idea of categorizing events using typologies. Applying the foundational work of these authors, Duglio and Beltramo (2017) presented five typologies for defining different events concerning sport tourism. Figure 1 represents the event typology structure devised by several authors over the years and finalized by Duglio and Beltramo (2017). Events

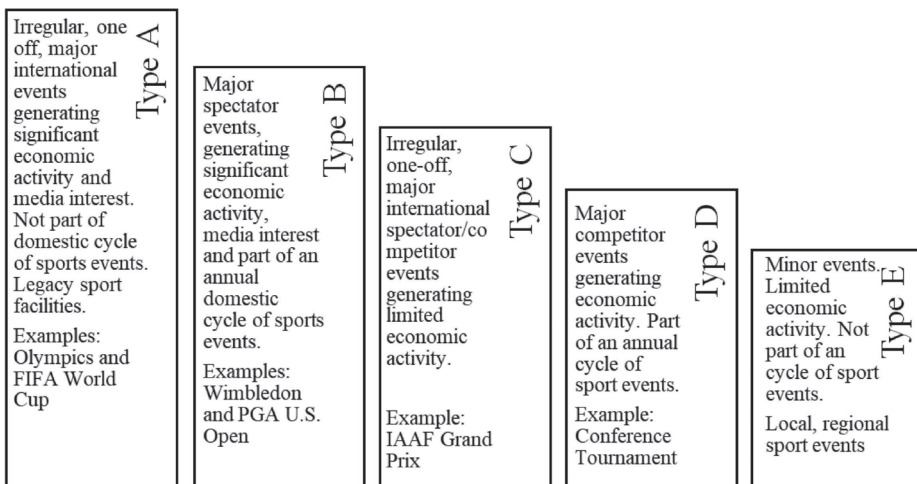


Figure 1 Event typologies

range in size from Type A mega-events such as the Olympics and FIFA World Cup (Gibson et al., 2012) down to small-scale Type E events such as a regional qualifier event for youth volleyball. Duglio and Beltramo (2017), whose research focused on active sport tourism, suggested that more research on small-scale events was needed, particularly in terms of looking at the economic impact of passive sport tourism.

Continual contributions to the literature is necessary to further understand the impacts of smaller events on cities around the world (c.f., Dixon et al., 2013). Saayman & Saayman (2014) identified research related to the typology of events weighing in favor of larger events (i.e., Type A, B, C, & D) versus smaller Type E events. In an exploration of research articles between 1990 and 2013, Saayman & Saayman (2014) identified 54 Type A-D research articles ranging in the type of larger events such as the World Cup (14 articles) and the Olympics (10 articles). During this timeframe, eight research articles were published on Type E events such as college baseball (Dixon et al., 2013), swimming (Wilson, 2006), and a hockey tournament (Yardley et al., 1990). With the continued rise in revenue generation toward any size of sport tourism event, research is necessary to keep up with such growth.

SMALL-SCALE MULTIPLE EVENT ECONOMICS

Previous research on small-scale events was undertaken in several different ways. Daniels and Norman (2003) wanted to determine the economic impact of several events in the state of South Carolina. The authors selected seven events that were located in different cities across South Carolina held between April and October 2001. Events included a 10k run/walk, a tennis championship, a regional regatta championship, a national softball world series, a soccer championship, a senior amateur golf championship, and a youth soccer tournament (Daniels & Norman, 2003). Data was collected through a questionnaire that was mailed to the participants one month after the event ended. Daniels and Norman (2003) drew their participants from an estimated pool of 62,454 people. Of that pool, respondents consisted of approximately 85% tourists and 15% residents. After collecting the data, Daniels and Norman (2003) used an input-output analysis to determine the average amount that each person spent concerning the specific events. With an estimated size of 30,740 entrants, the run/walk event was the largest while the smallest was the golf championship with an estimated 260 participants. The run/walk also had the highest overall economic impact which totaled \$6,080,482 (Daniels & Norman, 2003). The authors determined that the small-scale events improved the local economies of the state of South Carolina. Benefits of a study such as Daniels and Norman (2003) uncovered that hosting sporting events bring people to the city that would not normally travel to such a destination. According to the authors, 90% of the participants would not have traveled to the host city if it was not for the sporting event. The need for further research was noted by Daniels and Norman (2003) to determine if their results transferred to other regions.

In a study similar to Daniels and Norman (2003), Gibson and a team of scholars recognized the need for research for small-scale events. Previous literature suggested that larger events such as the Olympics or FIFA World Cup have left negative legacy barriers once those events were complete (Gibson et al., 2012). Several barriers included

financial burdens to sustain legacy facilities (Hillar, 2006; Lee & Taylor, 2006; Smith, 2009), social legacies that included residents being displaced due to the large event (Hall & Hodges, 1996), eminent domain being used for the 2016 Summer Olympics in Rio de Janeiro, Brazil (Kassens-Noor, Gaffney, Messina, & Phillips, 2018). Gibson et al. (2012) analyzed several events yet they chose events occurring in a single city. Gibson et al. (2012) evaluated six small-scale events occurring in Gainesville, Florida¹ with the efforts of examining the impacts of the three pillars of sustainability created by Elkington (1997): economic, social, and environmental. Elkington (1997) suggested this model of sustainability would allow businesses to determine how their actions affected the world around them. Gibson et al. (2012) applied Elkington's model to sports events to understand how these events would impact the communities in which they were hosted.

The team of researchers collected data from three adult events (marathon, senior games, archery) and three youth events (soccer, softball, swimming). Over 18 months, Gibson et al. collected data from 1,348 participants. Daily per person expenditures ranged from \$137.83 (USD) (senior games) to \$216.62 (USD) (youth soccer) with the a varying number of individuals in the traveling party and length of stay. Similarly, total expenditures ranged from \$560.43 (archery) (USD) to \$828.94 (USD) (softball). In summary, Gibson et al. (2012) noted that "all of the events generated substantial overall direct spending amounts from the expenditures of the event participants" (p. 167). The authors note that their findings should not be considered generalizable, however, the data suggest that small-scale events might be viewed as a "viable form of sustainable tourism development for many communities" (p. 170).

SINGLE EVENT IMPACT

In contrast to the multiple-event studies conducted by the likes of Daniels et al. (2004) and Gibson et al. (2012), Csobán and Serra (2014) explored the economic impact of a single event in fencing. Csobán and Serra aimed to determine if a niche sport event, such as fencing, could be a sustainable form of sport tourism by uncovering how the local economy was impacted by the event in the city in which it was annually hosted. The study reviewed data collected on sub-categories of economic impact including tourists' length of stay, accommodations, dining, and the approximate amount of money spent per day. Data was collected from both active and passive sports tourists by way of an on-site survey and analyzed using descriptive statistics. Of 149 possible subjects, 108 participated in the survey (72.5%). Over half of the participants (64%) stayed for the duration of the event for 2 to 3 days (depending on when the competition ended). A majority (72%) of the survey participants stayed in three or four-star hotels and ate in restaurants (83%) while attending the event. By comparing the results of this study to previous studies, Csobán and Serra (2014) concluded that the fencing tournament impacted the local economy of the

¹ Gainesville, Florida is in Alachua County with an estimated population of 269,043 (U.S. Census Bureau, 2021). Gainesville is approximately 178 kilometers northwest of Orlando, Florida, and 115 kilometers southwest of Jacksonville, Florida.

host city that aided in the decisions to continue such events in the future. Csobán and Serra (2014) suggested that future research should focus on a variety of events to provide a broader picture of event sustainability.

The economic impact of small-scale sports events has been repeatedly demonstrated by studies such as those discussed above. Multiple authors have suggested further research in a variety of geographical locations to help triangulate the trends and consequences of small-scale sports events. One region that is lacking specific data is the Western United States.

METHODS

The outcomes of the current study will add to the body of knowledge relating to sport tourism and the economic impact derived from small-scale sports events in a medium-sized city in the Western region of the United States. Similar studies of similar size were previously conducted in other regions and cities including Gainesville, Florida (Gibson et al., 2012) and South Carolina (Daniels & Norman, 2003). Not only does the current study aid in determining the consequences of small-scale sports events while expanding the current body of knowledge, but it also provides the local sports commission with a better understanding of the economic impact their services provide and, in turn, offer additional data that will aid in future decisions regarding hosting sporting events.

The research undertaken in this study is descriptive in nature. Jones (2015) discussed descriptive research to be, “used to assess or evaluate the outcome of something, such as an economic outcome study” (p. 7). This correlates with the research goal of assessing the economic results of the selected sport tourism events in a city located in the Western part of the United States. Furthermore, Csobán and Serra (2014) suggested that descriptive research is the standard method used in sport tourism literature.

STUDY SITE

The location for the current research study is a medium-sized city in the western United States. At the time of the data collection, the estimated population of the city was 217,108 people (U.S. Census Bureau, 2017). The classification “medium-size” was determined by Organisation for Economic Co-operation and Development (OECD) and is used for a city with a population between 200,000 and 500,000 people (OECD, 2018). The region label “West” associated with the city under investigation was supplied by the U.S. Census Bureau which separates the United States into four regions: Northeast, South, Midwest, and West (U. S. Census Bureau, 2020). The current research data collection occurred between June 2018 and December 2018. The local sports commission approved data collection access to sports tourists during this time frame. Additionally, the local sports commission agreed that this research was beneficial to provide the association much-needed data to market themselves competitively as a prime place to host sports events. Finally, the data could increase opportunities for the continued expansion of small-scale sports event programming in the area.

EVENTS

In coordination with the local sports commission, five sporting events were selected for the current research study. The events included a track and field master's championship event, a youth softball tournament, a powerlifting event, a collegiate wrestling tournament, and a co-ed volleyball tournament. Each of these events are governed by the greater association body associated with that sport. The governing bodies host thousands of events per year across the United States from more than 400 events for USA Powerlifting to more than 8,000 events for USA Track and Field. Table 1 offers a broad representation of the associations that had local, regional, or national events hosted in the city being studied. As economic impact research continued to build for small-scale events in medium sized cities, it is also important to note how often events such as these return to the same city as it will be significant to continue this type of research analyzing one sport's impact on a city over multiple years.

Table 1 Sport governing bodies²

Event	Association	Association Membership	Event classification	Times event hosted at research location
Softball	USA Softball	2,000,000	Local	
Volleyball	USA Volleyball	275,000	Regional	
Wrestling	USA Wrestling	230,000	Regionals	
Track & Field	USA Track & Field	130,000	Nationals	
Powerlifting	USA Powerlifting	22,000	Nationals	

The selection of five different events was suggested by Daniels and Norman (2003) as an opportunity to understand a diverse tourism population rather than focusing on one event. The authors used the typology suggested by Wilson (2006) when determining the size classification of their events. All events for the current study fell under the Type E sport event category.

The authors used data provided to them by the local sports commission³, in conjunction with data collected through on-site and online, fixed choice, self-administered questionnaire responses (i.e., intercept surveys). The type of survey given to respondents was dependent on how participants registered for the selected events. Questionnaires were distributed to both participants and spectators, 18 years or older.

² All information related to Table 1 was retrieved from each governing bodies website and the local sports commission being studied.

³ The local sports commission included information about the sport associations coming to the area as well as final attendance numbers collected by the sports commission in partnership with each sport association.

The response rate was different for the on-site and online questionnaires with the on-site questionnaires having a significantly higher response rate.

SELECTED POPULATION

Sport tourism includes both active and passive sports tourists. It is common in sport tourism literature for one or both types of sports tourists to estimate the population of a study (cf. Csobán & Serra, 2014; Daniels & Norman, 2003; Duglio & Beltramo, 2017; Gibson et al., 2003; Gibson et al., 2012). The current study utilized both types of sports tourists at the five selected events to show the combined economic impact these populations have on the study site.

DATA COLLECTION

Data was collected applying surveys created and administered using an electronic software platform and portable electronic tablets (i.e., iPads). A pilot event was selected and survey administration was completed in May 2018 before the start of the official data collection for the current research. The benefits of this pilot research were to practice using data collection equipment and to understand the survey process and survey questions with potential sport tourism participants.

Once the events were selected the survey was administered at the site of the event using a random selection process during the last two days of each event. The investigators approached subjects for voluntary participation using an intercept survey method. The intercept survey data collection method provides the researcher the ability to connect with participants in a real-time situation during the event to ask them direct questions related to the topic of the research (Deutsch & Goulias, 2009). This was considered a benefit to the current research as previous studies have used quantitative surveys to delve into the economic impact of sports events often after the events occurred (cf. Csobán & Serra, 2014; Gibson et al., 2003; Gibson et al., 2012), for example, mailing questions to participants as much as a month after the event occurred.

The survey consisted of 15 questions, including demographic information and additional questions suggested by the Sports ETA for determining economic impact. Beyond verifying if a participant was 18 years of age or older, no personal identifying information was collected. Surveys lasted between five and eight minutes. Other data was provided by the local sports commission when available.

DATA ANALYSIS

Data was analyzed using descriptive statistics as suggested by Csobán and Serra (2014) and Gibson et al (2012). The economic impact was determined by placing the economic numbers derived from the analysis of the survey results, into the input-output equation developed by Sports ETA,⁴

⁴ The current research recognizes the advances in technology, but follows Barnes and Henrickson (2015, 2017) equation as it is closely related to the geographical location for this study.

The total number of sports tourists × the number of days × \$150 (an estimation provided by the local sports commission) × 1.3 (an assumed economic multiplier⁵).

The Sports ETA recognizes that all sports commissions are not the same and gives each commission the ability to use the above equation or to adjust the equation based on current standards or expert's knowledge in their geographical location. Therefore, the authors utilized an updated equation based on economists Barnes and Henrickson (2017) to reflect their expert opinion on similar local areas. Their equation was chosen as the city used in their study matched the city used for the current study. Barnes and Henrickson (2017) input-output equation was as follows:

the total number of sports tourists × total number of days × \$209.25 (estimated average spending) × 1.3 (economic multiplier range).

RESULTS

The five events studied were multi-day events. According to the local sports commission, these five events saw 10,454 active and passive sports tourists. During this study, a total of 151 survey responses were collected from active and passive sport tourists ($n = 113$) as well as local residents ($n = 38$) across the five events. The data from participants that were considered local was collected to simply show that small events do attract nearby residents to small events, where larger events are known to deter residents from attending or even leaving town while the event is taking place (Bull & Lovell, 2007). However, the responses from local participants in the study were not included in the economic impact data as these numbers would have skewed figures such as lodging.

The results from the current research offered 113 responses were collected from sports tourists that traveled 50+ miles to the event(s). One methodological limitation was that we did not decipher between an active (one that competes in the events) or passive sport tourist (one that travels to the event to watch the competition). We simply asked if they traveled more than 50 miles to the competition. The breakdown of sports tourists participants for each event are as follows, Powerlifting (47), Wrestling (20), Softball (17), Volleyball (15), and Track and Field (14).

Sports tourists attempt to find lodging accommodations near or within driving distance (i.e., less than 50 miles, often closer) to the event. Sports tourists stayed an average of 3.32 days during the five events. Sports tourists that stayed the most days were Track and Field (4.14) followed by Powerlifting (3.98), Volleyball (3.13), Wrestling (2.93), and Softball (2.15) and in descending order were sports tourists attending the Track and Field event of 4.14 days.

When asking survey questions about lodging accommodations, categories were not given to the participant rather the participant simply divulged the information related to where they they slept during their stay. Of the 113 total sports tourist respondents,

⁵ A multiplier in its simplest form is how many times money is spent by a tourist that may circulate through an economy (Crompton et al., 2016).

a majority, 75.2% stayed in a hotel or motel (85) during their stay in the area. Next, results showed staying at a relatives/friends house (13) and AirBnB (13) were common followed by RV Park/Camping (1) and Other (1).

Individuals participating in the current research traveled with others. Each survey in this study represented an average of 2.38 people in their party per response. The largest party size corresponded to the youth softball tournament (3.20 people per party). Next was Wrestling (2.50), Powerlifting (2.13), Volleyball (2.07), and Track and Field (2.00).

Daily expenditures were broken down into categories common with existing economic impact research. Table 2 lists the per person, per day spending in the areas of accommodation, food and drink, retail, transportation, amusement and attractions, and an optional “other” category. The average dollar amount spent per person, per day on accommodations was \$43.19. This category was found to be the largest expenditure category. The sports tourists associated with the Track and Field event paid the most (\$52.56) for accommodations, while those associated with the Youth Softball tournament paid the least (\$31.40) for accommodations. After accommodation expenses, sports tourists spent the most on food (\$28.03), followed by retail purchases (\$15.34) and transportation costs (\$12.85). Overall, through the five events studied, sports tourists spent on average \$100.75 per day during their stay in the area. The highest per day spending was at the Powerlifting event (\$121.12) and the lowest was at the Youth Softball event (\$89.99).

Table 2 Financial expenses person/day

Event	Hotel/Motel	Food	Retail	Transportation	Amusement	Other	Total/Day
Powerlifting	\$51.63	\$33.63	\$17.23	\$17.17	\$1.26	\$0.20	\$121.12
Track & Field	\$52.56	\$21.05	\$4.71	\$20.44	\$5.09	\$0.00	\$103.85
Volleyball	\$45.37	\$29.39	\$10.91	\$11.84	\$0.98	\$0.00	\$98.49
Wrestling	\$34.98	\$28.89	\$11.51	\$12.20	\$2.73	\$0.00	\$90.31
Softball	\$31.40	\$24.89	\$27.18	\$5.20	\$0.71	\$0.61	\$89.99
Mean	\$43.19	\$27.57	\$14.31	\$13.37	\$2.15	\$0.16	\$100.75

REAL-TIME ECONOMIC MULTIPLIER

Combining data from the current research and utilizing the foundation of the economic impact equation from Barnes and Henrickson (2017), real-time data was created for the individuals that participated in this study. As seen in Table 3, calculations are shown for each event analyzed for the current research that may be considered real-time economic impact figures. The equation includes the number of participants, the average number of individuals in their travel party, the average number of days stayed at an event, the average expenses per person for each event including the input-output multiplier are calculated.

Table 3 Real-time economic impact of survey participants

Event	Tourists	Mean number of people in travel party	Mean number of days stayed	Expenses per person × economic multiplier (1.3)	
Powerlifting	47	2.13	3.98	$(\$121.12) \times (1.3)$	\$62,736.42
Track & Field	17	2.00	4.41	$(\$103.85) \times (1.3)$	\$20,242.65
Softball	20	3.20	2.15	$(\$89.99) \times (1.3)$	\$16,097.41
Volleyball	15	2.07	3.13	$(\$98.49) \times (1.3)$	\$12,443.47
Wrestling	14	2.50	2.93	$(\$90.31) \times (1.3)$	\$12,039.68
Total					\$123,559.63

ECONOMIC IMPACT COMPARISON

Identifying economic impact is not an exact science. “Economic impact analysis is an inexact process and the output numbers should be regarded as a *best guess*, rather than as being inviolably accurate” (Jeong & Crompton, 2015, p. 1). When understanding the economic impact of sport tourism, many of the figures are based on estimates of the existing economy during the year of the event when figures are available. Estimated figures come from the active and passive sports tourists attending events and economic experts in a local, regional, or national setting determining the estimates for expenses. Additionally, an appropriate multiplier with the possibility of certain types of motives (e.g., political) influencing economic impact reports being conducted (Crompton, 2006). Certain influences, motives, and existing local economic landscape at the time of research may affect the daily expenditures and multiplier. For example, Birmingham, Alabama built a sports complex to attract visitors beginning in 2011. This facility was built to hold events such as the National Senior Games and a National Collegiate Athletic Association Division II Track and Field Championship. When conducting an economic impact study to determine that the facility brought \$35 million to the city, economists used a \$195 daily expenditure with a 1.7 economic multiplier (Barnes & Henrickson, 2017). Similarly, Spokane, Washington built a comparable type of sports facility. To determine the potential economic impact of this facility, Barnes and Henrickson (2015) used a \$209.25 daily expenditure with a multiplier of 1.3. Previously, Jones et al. (2010) conducted an assessment of three sports facilities in the Spokane, Washington area. Given the breadth of this report and the three different facilities, several multipliers were used (e.g., 1.42, 1.80) as well as per day expenditures (e.g., \$354.29, \$114.36) to determine the economic impact. Tables 4 and 5 represent real-time economic impact data versus economic impact data using Barnes and Henrickson (2015, 2017).

Table 4 Real-time economic impact data for total number of sports tourists

Event	Total number of tourists	Average number of days stayed	Expenses per person × economic multiplier	Economic impact
Track & Field	2620	4.41	$(\$103.85) \times (1.3)$	\$1,559,874.77
Powerlifting	2464	3.98	$(\$121.12) \times (1.3)$	\$1,513,089.18
Wrestling	3770	2.93	$(\$90.31) \times (1.3)$	\$1,296,845.28
Softball	1600	2.15	$(\$89.99) \times (1.3)$	\$402,435.28
Volleyball	890	3.13	$(\$98.49) \times (1.3)$	\$356,672.67
Total				\$5,128,917.18

Table 5 Economic impact data using Barnes and Henrickson (2015, 2017) tourist expenses estimates

Event	Tourists	Number of days	$(\$209.25) \times (1.3)$	Economic impact
Track and Field	2620	4.41	$(\$209.25) \times (1.3)$	\$3,143,031.26
Wrestling	3770	2.93	$(\$209.25) \times (1.3)$	\$3,004,815.35
Powerlifting	2464	3.98	$(\$209.25) \times (1.3)$	\$2,667,673.01
Youth Softball	1600	2.15	$(\$209.25) \times (1.3)$	\$935,766.00
Coed Volleyball	890	3.13	$(\$209.25) \times (1.3)$	\$757,780.04
Total				\$7,841,392.65

The location used for the economic impact study conducted by Barnes and Henrickson (2015, 2017) was similar to that of the current study. The importance of the current study was to show how the current average of daily expenditures with a similar multiplier is shown in table 4 and table 5. As these tables show, there was a substantial difference in estimated daily expenditures used from Barnes and Henrickson (2015, 2017) and real-time expenditures combined with the active and passive sport tourist figures provided by the local sports commission of the current study. This difference accumulated to \$2,712,475.47.

The benefit of hosting small-scale events offers the opportunity to use existing sport facilities, fields and courts to lower the cost of expenses needed to manage each event (Hingham, 1999). Event expenses were requested by the authors to the local sports commission being studied. Table 6 represents the gross real-time economic impact, the event costs, and the net real-time economic impact. One author asked a question to a local sports commission representative concerning sport associations choosing to host their event in their city and related expenses, this representative responded by stating:

Sometimes [sports associations take on all or some expenses and other times] we take on costs if the tournament or respective associations need it. Sometimes, we will just offer to work [at the events or], let them use equipment and signage for free or just make a donation to them so they continue to bring the event back year after year.

Because in the end, if they have the event and it brings in people from out of market, that helps us in the long run (Local Sports Commission Representative, personal communication, January 24, 2022).

Table 6 Real-time economic impact and sports commission expenses

Event	Gross real-time economic impact	Sports commission costs for event	Net real-time Economic Impact
Track & Field	\$1,559,874.77	(\$50,200)	\$1,509,674.77
Powerlifting	\$1,513,089.18	(\$20,000)	\$1,493,089.18
Wrestling	\$1,296,845.28	(\$42,000)	\$1,254,845.28
Softball	\$402,435.28	(\$6,300)	\$396,135.28
Volleyball	\$356,672.67	(\$5,770)	\$350,902.67
Total	\$5,128,917.18	(\$124,270)	\$5,004,647.18

DISCUSSION AND CONCLUSION

The purpose of the current study was to build and contribute to the existing body of knowledge to further understand and support previous literature by investigating if the economic impact was evident with five small-scale sports events. John Crompton, a seasoned scholar in the area of sport finance and economics, along with other colleagues suggest that conducting sport economic impact research is often a prediction rather than truth (Crompton & McKay, 1994; Jeong & Crompton, 2015). This statement would indicate the necessity for continued research in the area of sport economic impact throughout the world. Previous literature has found research of this type in many areas of the United States (cf. Daniels & Norman, 2003; Gibson et al., 2012) as well as internationally (cf. Bazzanella et al., 2019; Malchrowicz-Moško, & Poczta, 2018) showing economic impact evidence for small-scale sporting events, but the call for further research was necessary. Therefore, an additional benefit of this study bridged a gap in the literature related to the location of the study as previous literature has seen less research conducted with a medium-sized city in the Western United States.

Utilizing elements of a sports commission economic impact input-output equation (i.e., Barnes & Henrickson, 2017), the direct spending results gathered through the intercept survey tool used in this study showed sport tourists' impact on the economy and the region during their time participating and attending events. This is one of the primary benefits to a study such as this, in showing actual financial figures of individuals attending specific events such as Track and Field and Powerlifting. The ability to show real-time financials, such as the amount of spending per day, during the events provide a level of validity to the case at hand as researchers such as Crompton (2006) and Jeong and Crompton (2015) reiterate that studying economic impact is not an exact science.

The industry standard for sports commissions finds annual reports using estimates of the number of individuals that attend all events for the year, for example, and using

the industry-standard input-output multiplier for sports commissions. Some sports commissions go so far as to not recognize expenses incurred to host the events for the year in these reports. The 2018 Harris County of Houston, Texas sports commission annual report, it was identified revenues of \$93,577,261 (i.e., hotel and car rental taxes), \$125,000,000+ in economic impact from non-seasonal events, and a projected \$900,000,000 economic impact for all events in 2018 (Harris County, Houston Sports Authority, 2021, p. 4–5). This report did not identify any expenses associated with hosting events, construction costs, or sports commission employee salaries.

The current study offers support, although a small sample size, of similar trends previous literature identified that hosting small-scale sporting events, bring sport tourists to a city in which they would have not otherwise visited (cf. Daniels & Norman, 2003; Gibson et al., 2012; Hingham, 1999). Moreover, the sports tourists that did travel to the host city did in fact offer evidence of economic impact to the Western United States city in question. Additionally, the current research, similar to that of Daniels and Norman (2003), showed that beyond the daily expenses of lodging, food, and transportation, sport tourists did not spend much money per day on other items such as entertainment or retail (see Table 5). Local sports commissions should take note of the spending habits of their sport tourists by identifying ways to entice these individuals to spend money elsewhere to maximize economic impact beyond the money spent toward expenses.

More than two decades ago Hingham (1999) suggested the benefits of small-scale sporting events outweigh the costs that would show a net impact on the city is positive. The city has the existing infrastructure to host small-scale events and sports tourists which, along with the decreased cost of security and the lower costs to bid for small-scale events, can lead to a determination that the small-scale events in the current study had a net positive effect on the area. The current study offers useful information that could help local sports commissions move forward when potentially deciding to host smaller events of their own rather than larger events. The data showed that most sports tourists stayed in hotels or motels during their time in the city. Given the city's hospitality tax on these accommodations to support the sports commission's bid for small-scale events, the costs to the citizens of the area are reduced by spending brought about by sports tourists. The data collected during this study can also show that while per-person spending per day did not reach the heights of either the local sports commission's estimate or the conclusions of Barnes and Henrickson (2015, 2017), it did amount to over \$100 per day, per person spent in the area being studied. Depending on the size of the event and the number of sports tourists involved, this can represent an important impact as seen in the case of the powerlifting competition.

While the current study is opportunistic for small sporting events in mid-sized cities in the United States, other similar sized cities around the world should take note. Being critical of the current study is important for sport managers, politicians, and other government workers in other cities, but taking this critique and adapting a economic impact model for their own cities and the sporting events they host is paramount. Other cities that are able to adapt more of a realistic economic impact model (i.e., real-time data gathering technique) are likely to get much different economic data, however, it is the adaptation of their models from past literature (c.f., Barnes & Henrickson, 2015, 2017), that the current research will shape sporting event research

in the future. It is of note that while the current study suggests a positive relationship between small-scale sports events and economic impact, there were a few limitations to the study and areas which can be expanded upon in future research.

One limitation that arose after the events were complete was the recognition that real-time data to determine economic impact can prove to be beneficial for stakeholders making decisions about spending for local events. If this was recognized earlier, a larger data collection team could have been arranged to increase the number of study participants at each event. With 10,454 active and passive sport participants and the number of participants for the current research ($n = 113$), the rate of tourists to participants lies at just over 1%. Anticipating the number of attendees to events can aid in the number of data collectors at each event in the future.

Another limitation that was identified that hindered the data collection process was related to the number of surveys completed from the master's track and field competition was affected by the usage of technology and the weather during the event. Due to high temperatures during this one event, the electronic tablets used to collect responses overheated, limiting the number of possible responses. Fortunately, this situation occurred on the first day of a multiple day data collection process. This was reflected in the low number of responses as compared to the other events. Future research should consider all elements of data collection practices before events, including environmental and technological issues.

Taking a real-time economic data collection approach offers limitations in understanding the population, traditions, and local customs related to all participants. While it was not tracked specifically beyond knowing whether or not the participants traveled more than 50 miles to attend the events, other factors play a role in spending habits of participants including their own home customs, or even the type of sport they participated in. For example, active Powerlifting participants spent the most amount of money on food. It is well known that those that compete in Powerlifting will not only spend money on food at any given location, they will also have an additional nutritional strategy that includes bringing a food scale for measuring portions and pack familiar foods in case the city they are traveling to does not have what they want or need (Capurso, 2017).

Future research would benefit from obtaining cost information for hosting events, especially when trying to determine the net impact of small-scale sports events. Agha and Taks (2015) suggest utilizing a cost-benefit analysis (CBA) to gain better insight into the economic impact of these types of events. Furthermore, they suggest that a CBA can lead to a more accurate understanding of the impact caused by hosting small-scale sporting events than simple input-output calculations. The resulting implications from the current study could be transferred to other cities that utilize a similar tax structure to help sports commissions and tourism organizations show government officials why they should support small-scale sports events in their cities. With the information gathered, cities similar in size may be able to justify bidding to host small-scale sports events to bring revenue into the city.

The findings of this study suggest the need for further research on the net impact of small-scale sport tourism and how to increase additional opportunities for active and passive sport tourist spending. Given the results of the current research, it could be argued that small-scale events in medium-sized cities are beneficial for the city in

terms of economic impact. However, larger events in large-sized cities (i.e., in the U.S. or other countries) may not prove as beneficial (cf. Coates & Humphreys, 2008; Harger et al., 2016; Humphreys & Prokopowicz, 2007) or possess similar results as the current research. Future research should investigate ways to continue to collect economic data in real-time. Additionally, towns and cities that host Type E events should look for ways to increase sports tourist spending beyond the categories in this research, mainly through access to amusements and attractions in the host city that coincide with the sporting event and sports tourists' interests in similar-sized cities.

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Classification changes in para swimming and their impact on the Czech Para Swimming Team

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ABSTRACT

This aim of this article is to describe up-to-date polices and main classification issues in Paralympic sport with focus on Paralympic swimming. Using narrative review, it determines the influence of recent classification changes by reviewing available research data on how the classification system works and what direction it has taken after January 2018 when the new Classification Manual for swimming was published. It analyzes those changes in Czech Para Swimming Team during 4-year-period leading up to Tokyo Paralympic Games 2020 including 3 major swimming competetions and Paralympic Games itself. The results show the changes directly influenced the performance of Czech para swimmers in mentioned major competetions in a positive way. Czech Para Swimming Team added two more medals and gained more spots for both men and women for Tokyo Paralympic Games 2020 effectively extending relatively small Czech Paralympic Team in Tokyo.

KEYWORDS

disability sport; impairment; Tokyo 2020; Paralympic games

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INTRODUCTION

A type of any classification is being used in most sports. The most common classification units in sport are age, gender and body weight. However, the classification in para sport is a key difference between Olympics and Paralympics (Burkett et al., 2018) providing a fair competition for athletes with a range of physical disabilities (Oh et al., 2013). This enables an equitable starting point for competition by minimizing the impact their impairment has on the outcome of the event (Payton et al., 2020). On the other hand, it belongs among the most challenging issues in Paralympic sports (Jaeken, 2020).

Para sport classification systems define eligibility for para sport and provide a competition structure (Vanlandewijck et al., 2011; Tweedy et al., 2018). In other words, classification systems should ensure para sport is not dominated by those athletes with the least impairment, but rather athletic excellence is the key determinant of success (Ungerer, 2018). Based on the testimonies of athletes and competition observations, sometimes this is rather wish than a reality.

Within each sport, there is a general drive towards evidence-based classification. The reason is that classification is a critical aspect of Paralympic sport (Tweedy et al., 2014). It determines who is and who is not eligible to compete in Paralympic sport. As public or media awareness of Paralympic movement grows, so does the importance of classification decisions that determine the eligibility and allocation of athletes into classes.

The aim of this article is not only to describe up-to-date classification in para swimming, but to present emerging issues in this field and raise questions to increase the awareness of this topic among sport scientists. Furthermore it focuses on classification changes after January 2018 when an evaluated Classification Manual was published causing all internationally competing swimmers to undergo classification evaluation again. It is well known that the classification class assigned to an athlete has a significant impact on the level of success that an athlete can achieve. This further proves individual classification systems should not be created solely based on the judgement of classifiers, but should be supported by evidence and validated studies (Tweedy et al., 2011; Vanlandewijck et al., 2011).

The article analyses the effects of the classification changes process in Czech Para Swimming Team regarding the results of 4 major competition events from European Championships 2018 up to 2020 Tokyo Paralympic Games with the goal of confirming or denying the significance of classification changes in relation with both individual and team performance.

To accomplish that we must answer following questions:

1. What system is used to evaluate athlete's performance and who is eligible to compete?
2. How are the athletes evaluated?
3. How is the classification system further evolving?
4. What are the effects of recent classification changes?

METHOD

To analyze and summarize most important information for this topic, a narrative review is used. Sources included official documents from World Para Swimming, documents from classification seminars and scientific literature retrieved searching within

the following electronic bibliographic databases: WoS, PubMed, SPORTDiscus and ERIC (via EBSCO) and Scopus in the time period of last 10 years, i.e. from 2011 to 2021 (key words: “para sport”, “paralympic”, “classification”, “para swimming”). The search was limited to papers published in English language.

REVIEW

Paralympic classification process

Currently, the classification system in para sport can be broadly described using functional performance limitations assessment of the disability rather than its medical classification. As a milestone of this major change in perspective the Barcelona Paralympic Games in 1992 is considered (Jaeken, 2020). The functional system is rather dynamic and allows individuals with originally different medical diagnoses to compete together in categories. Thus, for different sports, classification classes may differ for the same athlete if the level of disability’s impact on the sport performance is different (Štefák, 2017; Tweedy et al., 2011).

However, the medical point of view is still necessary to describe the minimum disability threshold an athlete must have to be eligible. These criteria determine who can participate. Examples of minimum handicap criteria include maximum height for an athlete with a height impairment, or amputation height for an athlete with a missing limb. Each sport has specific minimum handicap criteria (International Paralympic Committee, 2021b [online]).

Ten eligible types of impairment for Paralympic sport involve 8 of them being physical disability (reduced muscle strength, limited passive range of motion, limb loss, differences in lower limb length, stature disorder, hypertonia, ataxia and atehostosis), the 9th area being visual impairment and the 10th area being intellectual impairment. World Para Swimming accepts all ten of the above mentioned disabilities. So in conclusion to answer our first question – an athlete must have at least one of the listed disabilities to participate in para sport. Further expansion would have to be decided by the IPC (International Paralympic Committee) General Assembly (International Paralympic Committee, 2021a [online]), International Paralympic Committee, 2021b [online]).

Evaluation methods

Once the eligibility and minimal handicap are confirmed, next step is to separate athletes into groups with similar activity limitations in their specific sports in order to minimize the impact of impairments on sport performances (Jaeken, 2020). Based on the “clinical” assessment, the athlete is assigned to one of the classification classes. (International Paralympic Committee, 2021a [online]). The main classification differences lie in the way these impairments are evaluated during the classification process. Nevertheless, precise evaluation is a crucial point of the classification.

The classification is not open to the public and only the athlete is allowed to participate. It is usually conducted by two to three classifiers (i.e. classification panel), at least one of whom has a medical background, called a medical classifier, and at least one of whom has a sport background, called a technical classifier (International Paralympic Committee, 2021a [online]).

In swimming, the classification process consists of two parts – a dry land test (bench test) and an in-water test. For physically disabled athletes, classes 1–10 are designated with prefixes S for backstroke and freestyle, SB for breaststroke and SM for medley events. Thus, the classification result is a numerical class with prefixes, for example S7/SB7/SM7.

The SM prefix is not assigned according to the extent of the disability but is calculated according to the formula $SM = (3S + SB)/4$, while for the lower classes, S1 to S4, the formula $SM = (2S + SB)/3$ applies, due to the absence of a butterfly section in the medley event (World Para Swimming, 2018c). The result of the SM class is rounded up or down by the classifiers subjectively according to the swimming performance evaluated. It applies that the lower the class number is, limitations of the disability and the overall effect on athlete's performance increases.

If classifiers assign an athlete a classification class, they must also determine the athlete's sport classification status, i.e. whether the athlete will have to undergo further classification in the future. Basically, there are 4 statuses. The New (N) status is assigned to the athlete before the athlete takes part in a classification. It describes that this athlete must first participate in a classification before he/she can compete in his/her first international competition. The Confirmed (C) status gets the athlete who has both a qualifying impairment and a stable (i.e. unchanging) ability to perform the specific tasks and activities that are essential to the particular sport. Moreover, such athlete is not required to undergo further classification (except in situations involving protests, medical review and changes to the criteria for the classification class in which he/she is placed). The Review (R) status is provided when the Classification Panel believes that further classification will be required. It may make this determination based on several factors, e.g., when an athlete has recently transitioned from an Olympic sport to a Paralympic sport, has an unstable or progressive impairment that, while permanent, is not stable, or has not reached physiological maturity due to the athlete's young age. An athlete with R status must undergo further classification at the next major international competition or before a fixed date (certain year is always used) in case of Fixed Review Date (FRD) status (International Paralympic Committee, 2021a [online]).

Within the bench test, World Para Swimming (2018c) recognizes several tests. Those need to be reliable, ratio-scaled, and resistant to training (Beckman et al., 2017).

Muscle Strength Test is conducted on a six-point scale from zero to five, assessing the functional range of motion of the test subject when applying the resistance of the classifier to the far end of the limb of the muscle being tested. The scale is well described. However, certain level of subjectivity is present as the classifier is measuring muscle strength against his/her resistance. As such there is a need of great experience from the classifier. Especially for athletes with cervical spinal cord injuries, assessment of manual muscle power is mostly used as the starting point for classification (Ungerer, 2018). As Beckman et al. (2017) suggest the most appropriate voluntary strength assessment method for inferring strength loss in para-athletes should be multi-joint, isometric tests performed at joint angles that facilitate maximum force production.

Similarly, Coordination Test (especially important for swimmers with ataxia, atetosis, hypertonia or a neurological disorder such as cerebral palsy, formerly cerebral palsy) uses a six-point scale from zero to five, which again needs a certain level of experience as it looks at the quality of the movement.

The six-point scale is also used in passive joint range of motion testing and the individual grades are awarded based on the so-called Passive Functional Range of Motion for Swimming (PFROMS scale), where the movement performed is rated as a percentage. The movement is not performed by the examinee but is performed passively by the classifier.

Perhaps rather quantitative measurements could be more precise and undoubtable, like measurement of loss of limb length which is measured precisely, often with the use of X-rays. The measurement is taken twice, if the difference between the first and control measurement is greater than 1%, a third measurement is taken. The amount of limb loss is then scored according to the table in the classification manual. For people with dwarfism, it is important to measure height of the swimmer with different levels for males and females.

All above mentioned methods should be valid and reliable which is fundamental demand for fair and evidence-based classification (Hutchinson et al., 2021). However, minimal consensus exists for assessing impaired strength, coordination and range of motion. In the light of evidence-based approach, a systematic review on this topic showed “moderate” confidence in using isometric strength for assessing strength impairment, tapping tasks for the assessment of coordination had “low” confidence rating. Moreover, some other identified measures gained “very low” confidence rating (Hutchinson et al., 2021). The problem of reliability in coordination measurements was confirmed by study of Smith et al. (2021) who evaluated trunk coordination, range of motion (ROM), and strength in non-disabled participants.

Future research direction based on current classification issues

Because of high subjectivity of the tests, rather objective methods were suggested. Especially physical assessment of hypertonia, ataxia and athetosis is scored by subjective clinical judgment. The study of Maia et al. (2021) used practical and more objective measures of movement smoothness, rhythm error and accuracy. To quantify smoothness of the movement, an accelerometry was used. For rhythm error and accuracy, the researchers used video. The authors confirmed difference in these parameters between para swimmers and able bodied swimmers and concluded that most important predictors in classifying participants were movement smoothness at both movement speeds, and rhythm error at 120 bpm.

The classification process also needs to take into account asymmetry in the movement and other (more global) factors as asymmetry in movement could reduce optimal performance (Dingley et al., 2014). Biomechanical and coordination measurements were also considered to be useful tools to assess swimming performance (Feitosa et al., 2019).

Recent study of Dos Santos et al. (2021) evaluated kinematic variables of para swimmers' performance and their relationship with functional classification using four underwater cameras. Swimming velocity, stroke length, and submerged phase were positively correlated with the para swimmers functional classification. Nevertheless, stroke rate, velocity hand for each phase, coordination index, and intracyclic velocity variation were not related to the classification.

The most important in the para swimming classification however, is evaluation of swimming propulsion (Hogarth et al., 2020). Possible way, how to evaluate this pa-

parameter is to use a 30second maximal fully tethered freestyle swim test. In the study with 80 elite swimmers, para swimmers with physical impairment had lower absolute and normalized tether forces than able-bodied swimmers, and there were moderate positive correlations found between tether forces and sport class (Hogarth et al., 2020). Interestingly, para swimmers with limb deficiency showed stronger relationships between tether force and maximal freestyle swim speed than did para swimmers with hypertonia and impaired muscle power. The authors concluded that physical impairments affect para swimmers' tether forces during maximal fully tethered freestyle swimming, explaining a significant proportion of their activity limitation. It was recommended that maximal fully tethered swimming be included in Paralympic swimming classification as an objective assessment of swimming propulsion (Hogarth et al., 2020).

The ability to overcome drag (both active and passive) is also an important factor for swimming as well. Active and passive drag is higher in swimmers with central motor and neuromuscular impairments in comparison to nondisabled swimmers. It is associated with sport class (i.e. severity of swim-specific impairment) and maximal freestyle performance. As such, swimmers with other non-neurologic (e.g. anthropometric) impairments might have advantage over those with “neurological” ones (Payton et al., 2020). For this reason, it is suggested that drag measures should be considered for classification for these swimmers, but not for those with anthropometric impairments.

A specific issue which arised recently is the impact of age and maturation on performance and classification. Hogarth et al. (2021) reported age having the most noticeable influence on performance between the ages of 12–20 years before performances stabilize and peak in the twenties. As for gender, women are faster during early adolescence and their performances stabilize, peak and decline at younger ages. The most interesting is that swimmers from different sport classes show differences in age-related trajectories in performance after maturation and when training-related factors are more likely to explain competitive swim performance. According to the authors, results of this study can help to inform decision-making on the allocation of sport class and its status in para swimming classification.

Although scientifically valid and reliable methods must be used primarily to classify the degree of disability, these measurements alone cannot be the sole criteria for classification. This is because although some impairments are permanent, they can be influenced to varying degrees by exercise and training. For example, individuals with partial spinal cord injury and spastic hypertonia may have permanently limited muscle strength that is influenced to varying degrees by exercise and training. It is therefore extremely important that athletes who, through exercise and training, perform better in the classification process than those who have the same impairment but, for example, do not exercise at all and therefore perform less well in classification, are not disadvantaged by being assigned a classification class for a lesser degree of impairment. Ensuring that well-trained athletes are not disadvantaged in this way requires methods that allow classifiers to distinguish these athletes from untrained athletes. A battery of reliable tests for identifying limitations based on the consequence of disability level will provide classifiers with a way to differentiate these athletes (Reina, 2014).

Also, we might expect that athletes who are taller, i.e. have greater muscle mass and longer arm span, swim faster. However, is this truth also for athletes with a physical disability? In a study of Dingley et al. (2015), this was truth for midsevere disability females but not for female from no-disability and low-severity-disability groups, greater muscle mass was associated with slower velocity. Also, lighter females (with less frontal surface area) in the low-severity group were faster. This however didn't pay for male swimmers. This might have impact on coaching as these authors recommend low-severity male swimmers and midsevere female swimmers to develop muscle mass and upper-body power to enhance their performance.

Another issue might be specific health conditions of athletes with quadriplegia and high paraplegia due to spinal cord injury. Mills & Krassioukov (2011) suggested the inclusion of autonomic nervous system parameters into classification of athletes with high-level spinal cord injury. Based on this assumption, Squair et al. (2018) recommended incorporating assessments of cardiovascular capacity in classification of elite wheelchair rugby athletes.

In conclusion sport classification in swimming and its methodology is evolving and World Para Swimming has gradually implemented significant changes to the classification system, based on numerous research studies, e.g. Hogarth et al. (2018). Further and deeper research is definitely needed to advance evaluation methods and improve the classification system as a whole.

Classification class allocation changes in the Czech Paralympic Swimming Team from 2018

After World Para Swimming published revised Classification Manual in January 2018, all internationally competing swimmers were obligated to undergo new classification evaluation at the closest opportunity regardless of swimmer's current classification status (Confirmed, Review or Review with the Fixed Date) due to the significant changes in evaluation methods as mentioned above. If the athlete failed to comply it was forbidden for that athlete to participate in any major World Para Swimming competition (European or World Championships and Paralympic Games) going forward (World Para Swimming, 2018c). Following the rule Czech Para Swimming Team sent 17 swimmers to undergo the process and all of them successfully qualified (met Minimum Qualification Standard time for participation) for European Championship in Dublin, Ireland later that year, however only 16 decided to participate (World Para Swimming, 2018a). There were major changes in classification for three Czech swimmers in 2018, two males and one female. One male swimmer previously classified in S4 was allocated S5 class with "Confirmed" status and decided shortly after not to participate in Dublin. The other male swimmer previously classified in SB5 was allocated SB4 class with "Review in 2020" status, causing him to compete with more severely disabled swimmers than before and effectively giving him a chance to fight for the medal podium in his main 100 m Breaststroke event. And eventually he had hugely successful race and won the third place and the bronze medal in 2018 European Championship. In comparison, if he had competed in his "old" class SB5, he could have finished in the seventh position with the same performance. Similarly, one female swimmer went from SB4 to SB3 with "Confirmed" status and once again there was a real chance for her to fight for the medals. And she has won silver medal

in 50 m Breaststroke. In SB4 class she would not have only had to compete in 100 m Breaststroke instead of shorter 50 m, but she would have presumably finished in the seventh place instead of that silver medal position. These major changes had a great impact to the performance of both individual swimmers and the Czech Team overall gaining two more medals (to total of five) in Dublin that year (World Para Swimming, 2018b). There were minor to no changes in classification class allocations for other Czech swimmers undergoing classification evaluation in 2018 and those changes had little to no impact to the European Championship results.

So although not all the classification changes had a positive impact on the team, the overall results in 2018 European Championship were directly affected in a positive way. A year later, 8 Czech swimmers qualified to the World Championships in London and the two reclassified swimmers mentioned above made it to the finals (World Para Swimming, 2019). The male swimmer had even met Minimum Qualification Criteria (MQS) times for Tokyo Paralympic Games effectively helping to gain more male slots for the Games. Had they both stayed in their original classification classes, they would not even met the MQS times to participate in London World Championships. This fact once again shows how changes in classification can have strong and direct impact to the individual performance of all the para swimmers.

In April 2021, the Czech Republic had a total of eight swimmers with the MQS times met for the one-year postponed Tokyo Summer Paralympic Games. These were 3 women and 5 men (World Para Swimming, 2020b). The quota the Czech Republic received for the Games in Para Swimming was 2 women's and 3 men's slots. The number of slots is calculated based on the results from the 2019 World Championships and the annual world rankings (World Para Swimming, 2020a).

The male swimmer, who was classified in 2018 with the Review status had to undergo the process again and he was allocated his SB5 class back, thus losing his MQS limit and eliminating the chance to compete in Tokyo Paralympic Games. The question then remains: Are the results of this Czech para swimmer from 2018 to 2021 just and fair? The answer may be unclear for many of his coswimmers, opponents and himself alike. This shows there currently are significant classification changes throughout the whole duration of Paralympic cycle. These changes in turn affect the chances of success of individual athletes and may completely prevent or, on the contrary, allow the participation of swimmers in the Paralympic Games not on the basis of deterioration or improvement of sporting performance, but purely on the basis of changes in classification procedures, which are by no means yet perfectly objective and universally applicable. The described situation illustrates the erratic nature of the current classification system which World Para Swimming has been using since 1992 and the fairness of it is regularly questioned (Hogarth et al., 2019).

CONCLUSION

Paralympic classification system is the only way to officially participate in international competitions in any para sport. The article sums up the effects of classification changes on the performance of Czech para swimmers in recent years and although there is a great effort to make classification methods (not only in swimming) as fair as possible, desperately needed research is still underway and new methods are being

currently tested to achieve classification process objectification, especially reducing the influence of classification personnel on the relevance of assessment results. The review shows it still is a major issue in Paralympic sport. But despite the fact that the classification system not only in para swimming has been strongly criticized in recent years by athletes, coaches, officials and the professional public, so far it remains the only means of comparing the sports performance of not only physically challenged swimmers. Nevertheless, in the period before the Paralympic Games, there was a significant impact on performance and success of Czech para swimmers in major competitions due to the results of the classification. Therefore, it is necessary to work on the objectification and stabilization of the entire system.

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More similarities than differences: women's and men's perspectives on ice-hockey reporting in Czech sports journalism

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ABSTRACT

This study explores differences in the reporting of female and male sports journalists. Based on a brief review of the literature related to gender differences in sports journalism and the stereotypes associated with the work of female sports journalists, the paper identifies a purported 'female writing style' characterized by a focus on soft news, an emotional approach to reporting and reduced interest in statistical and analytical data.

Using a quantitative content analysis, I reviewed 167 audio-visual and 50 written ice-hockey reports about Czech Extraliga produced by six sports journalists, who worked in leading Czech sports media departments. I observed the frequency with which the reporters presented statistical data, evaluated a performance, described emotions, recounted personal stories, and used original phrases. Comparing women's and men's output, it emerged that gender of the author did not have a dominant influence on the form of their reports and did not impact the use of specific language elements.

KEYWORDS

female writing style; gender stereotypes; ice-hockey; male writing style; report, sports journalism

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INTRODUCTION

The sports arena is a microcosm of society, in which men are in the foreground and women are relegated to the periphery (Creedon, 1994). Researchers (Chambers et al., 2004; Franks and O'Neill, 2016) have found that sports reporting is home to the most extensive and persistent gender differences in journalism and that the participation of women in sports journalism has always been low compared to their participation in other news departments.

Most studies from countries other than the Czech Republic find that female journalists focus more on 'soft' news while men dedicate themselves to reporting 'hard' news (e.g. Schoch, 2013a; North, 2014). It has been repeatedly suggested that female journalists tend to pay more attention to themes regarding social roles (health, family, education), which could be the reason they treat sports news in more emotional and psychological way. Similarly, it has been claimed that male reporters most often cover politics, economics, business, or sports and therefore are more comfortable than women in using more factual and analytical language in their reporting (North, 2014).

According to the professional standards of sports journalism, which have been predominantly established by men (Boyle, 2006; Gill, 2007; Schoch, 2013a), a 'correct' sports report should meet four basic criteria – it should include technical and tactical analysis, evaluate the match and individual performances, reflect the journalists' direct participation on the site of the match, and demonstrate the journalist's depth of interest in the particular sport (Schoch, 2013a).

Nonetheless, sports journalism has undergone a change in the last few decades (cf. Creedon, 1994; Boyle, 2006; Brisbane, 2021), especially in the reporting of sports news, where the traditional emphasis on facts and analysis has shifted to the emotional, relational, and psychological aspects of sport. Nowadays, sports sections in newspapers are more inclined to offer interpretation and opinion-based journalism rather than recapitulations and analyses of statistics (Billings et al., 2018). The question of the existence of distinct male and female writing style is being raised again, as the line between traditional media and the new media, which favours 'fan-focused' and 'soft' journalism, starts to blur (Billings et al., 2018).

The inspiration for this study is the research of the so-called 'female writing style' by Swiss theorist Lucie Schoch (2013a) which I present in more detail in the theoretical part of this paper. Because the question of a possible differences in the 'female' and 'male' writing style in sports journalism has only just begun to be addressed, the aim of this study is to assess the theory that there are definite male and female sports reporting style in the Czech environment. No study concerning the professional development or the work of female sports journalists has yet been published in the Czech Republic, let alone any comparison of diverse writing styles.

For purposes of my research, I decided to examine the reporting on ice-hockey, which is the second most popular sport in the Czech Republic after soccer (Tejkalová, 2019). Its popularity is evidenced by the attendance at ice-hockey games, which numbered more than two million spectators in the 2018–2019 seasons (Bagar, 2019), when the Czech Republic has only 10.7 million inhabitants. Both soccer and ice-hockey have traditionally been covered by male reporters in the Czech Republic and covering those sports is considered to be the most prestigious job among sports journalists. Female reporters first

entered the field of ice-hockey in public television at the beginning of the twenty-first century. Their number is rising very slowly and opportunities are growing for them to hold important positions, but only on public TV. The situation with soccer reporting is different. There has been no continuous journalistic work by female reporters that I could analyse. Therefore, I decided to focus my analysis on ice-hockey reporting.

Gender in sports journalism

Although the number of women engaged in sports journalism has increased over the last three decades, research confirms that men still predominate over women in the field (Franks and O'Neill, 2016; Mudrick et al., 2017). Most sports news departments are all but entirely masculine. Women as a minority face various obstacles and pressures, which are a small minority of the journalists who work for them. As a minority of sports journalists, women face various obstacles and pressures, which are imposed on them by their colleagues, their sources of information, and the consumers of media content.

Even though radio and television broadcasting now have a greater percentage of women working in sports than they used to have (cf. Boyle, 2006; Brisbane, 2021), studies have demonstrated the disadvantages that women are confronted with, especially when it comes to credibility, stereotyping, and sexism (Etling and Young, 2007; Mastro et al., 2012; Mudrick et al., 2017). In TV sports broadcasting, female reporters are mostly relegated to reporting from the side-lines, while their male colleagues do more prominent work, such as providing commentary and game analysis (Messner et al., 2000). Despite the fact that there are some high-profile female sports broadcasters worldwide, such as Gabby Logan, Clare Balding, Sue Barker, Claudia Neumann, and Kathryn Tappen, some authors suggest that the visibility of women in radio and television sports broadcasting obscures their lack of representation on other platforms, especially the print media (e. g. Jakubowska, 2013; Franks and O'Neill, 2016).

The historically small number of women in sports newsrooms may be due to a general lack of coverage of female sports (Hardin, 2005; Hardin and Shain, 2005b; Sheffer and Schultz, 2007; O'Neill and Mulready, 2015; Franks and O'Neill, 2016). Men's sports have traditionally been given precedence over female sports on TV and in the newspapers. Hardin and Shain (2005b) suggest that sports news is more generally read and watched by men, and that men are not much interested in female sports. In addition, employers help to maintain the hegemony of male journalists in sports reporting (Connell and Messerschmidt, 2005) by failing to hire women for influential positions in their sports departments (as editors or editors-in-chief) and in sports organizations (as directors or managers). Thus, male superiority and female marginalisation remain common in sport and sports journalism (Hardin and Shain, 2006, p. 323).

Many studies have repeatedly shown that being a woman is a significant obstacle to success in sports media departments (Zoonen, 1994; Chambers et al., 2004; Hardin and Shain, 2006). While the number of women in newsrooms in other fields of journalism has increased, sports newsrooms (whether in the print, audio-visual or online media) still often operate as a nearly all-male team. Women who enter the sports world often encounter negative reactions from colleagues and the public (Brisbane et al., 2021, p. 3).

Research from the first decade of the new millennium has confirmed that the audiences of sports media are influenced by gender stereotypes. They consider female

sports reporters and presenters less trustworthy and knowledgeable than male reporters (Mitrook and Dorr, 2001; Toro, 2005; Etling and Young, 2007). However, a major breakthrough was reported in a research by Gayle Jansen Brisbane et al. (2021). Brisbane's study which focused on the work of journalists within National Football League in the USA was the first ever to assert significantly better acceptance by audiences of women sports broadcasters and a diminishing tendency to stereotype women. According to Brisbane (2021, p. 16–19), the American audience no longer considers female sports journalists to be less trustworthy than men. She found no fundamental difference in audience perceptions of credibility and knowledge for women and men.

The issue of female writing style

Historically, female journalists were expected to focus on women's social issues as part of their journalistic practice. The purpose of 'female journalism' was to write stories on topics that would attract female readers, while other topics, such as business, politics, foreign affairs, and sports remained the domain of men (Franks, 2013). Female journalists were presumed to be interested in creating 'soft' news and men dealt with 'hard' news, a distinction that was reflected in sports journalism as well. Women were traditionally thought to be interested in news about life stories and emotions, as opposed to the factual reporting and technical analysis that were the classical object of sports news (Schoch, 2013a). Studies agree that women are in fact more inclined to 'humanize' their reporting and add an emotional slant to their texts (Chambers et al., 2004; Boyle, 2006; Schoch, 2013a).

A significant study of the female writing style was made by Swiss theorist Lucie Schoch (2013a), who demonstrated the existence of a so-called 'female writing style' among the sports journalists working for Swiss daily newspapers. In her study, Schoch (2013a) interviewed selected female and male sports journalists and examined how women approached sports, how they selected the news to report, how they created their own material and how they treated the material they obtained from their sources (Schoch, 2013a). Part of Schoch's work was an analysis of the content of more than four thousand texts, which showed that most women's writing (with one exception) did not conform to the professional values and conventions of the 'male' writing style. According to Schoch's results, women 'have developed an approach to sports news that is characterized by an interest in soft news and psychological and human perspective which is different from the usual treatment of sports news focused on facts and technical analysis' (Schoch, 2013a, p. 719). Furthermore, women tended to accept their 'female' role in the newsroom, chose 'female' topics and 'soft' news to write about, and take an emotional approach to sports news. As a result, they are often underestimated in terms of the stories they are capable of reporting on, and their work is devalued for allegedly being more emotional than factual and inconsistent with the traditional principles of 'proper' sports journalism discussed above (Schoch, 2013a).

This image of female sports journalists is not confined to Switzerland only. For example, Chambers et al. (2004), Hardin and Shain (2006) and Gill (2007) claim that women in the United States and the United Kingdom are traditionally perceived to take a different approach to choosing the topics about which they write and how they write about them. They are believed to focus more than men on the 'human' and emotional aspects of sports. North (2014, p. 15) believes that Australian female re-

porters are 'pigeon-holed' in jobs reporting on traditionally female story areas such as the arts, education, and health. Neveu (2000) pointed to a 'psychological' treatment of news, practical information, and an ethnographic approach preferred by female journalists in French newspapers. According to Organista et al. (2019) who examined women's sports in the perspective of male and female journalists, women working in the sports departments in Poland had never been in the position of editor in chief, so they always had to follow the norms established by men. Other studies within the East European context (e. g. Ličen and Billings, 2013; Jakubowska and Ličen, 2019) focused more on the topics related to the women's sports and the gendered representation and national identity in specific countries rather than on the female writing style, which is the main interest of my study. Thus, the issue of female writing style has not been examined thoroughly yet in this region.

Female sports journalists in the Czech Republic

There is no comprehensive study in the Czech Republic that maps the history of sports journalism. The field has always been on the periphery of journalism studies and has been discussed only by students in theses and dissertations (e.g. Lukšů, 2011; Rybář, 2017; Řanda, 2017). A few authors have mentioned sports journalism briefly while summarizing Czech journalism overall (e.g. Křivánková and Vatrál, 1989), but I have found no more than four Czech students' theses dealing with the topic of female sports journalists (Janeczek, 2016; Koreis, 2017; Ondřejková, 2017; Hrbáčková, 2020).

As in other countries (cf. Hardin and Shain, 2006; Strong and Hannis, 2007; North, 2014), Czech female journalists rarely work in the sphere of sports media, but they are seeking more and more to break into the field (Koreis, 2017; Ondřejková, 2017). For this article, I determined how many women are working in leading Czech sports newsrooms, using the membership database of the Czech Club of Sports Journalists (Klub sportovních novinářů – KSN). In February 2020, the Club's database evidenced 366 members, of whom 23 were women, which corresponds to about six percent of the KSN's membership. However, the KSN list must be approached with caution because not all active journalists are registered with the organization and not all registered members are active journalists. For comparison, I tried to ascertain the number of women working in sports media from the editors-in-chief of the nationwide media of the Czech Republic. The sports department of Czech News Agency (ČTK) has 17 employees and 30 regular external collaborators, of whom six are women. The sports department of Czech Radio consists of 33 employees, two of them women. There are five editors at *iRozhlas.cz*, but two women contribute externally. In the sports departments of Czech Television (located in Prague, Brno, and Ostrava), fourteen women work as sports reporters and presenters, both externally and internally. The *TV Seznam* channel employs one woman, while *Hospodářské noviny*, *iHNED.cz*, and *aktualne.cz* have no women in their sports newsrooms. No female sports journalists can be found on the staff of *Mladá fronta DNES* and *Lidové noviny*, including their online versions, *iDNES.cz* and *lidovky.cz*. Two women work at the regional newspaper *Deník*. According to these findings, it is clear that sport remains a male domain in the media of the Czech Republic, just as it is abroad (Hardin and Shain, 2005a; Strong and Hannis, 2007; O'Neill and Mulready, 2015).

Method, samples and hypotheses

Based on the previous international research about differences between female and male sports reporting (Chambers et al., 2004; Boyle, 2006; Schoch, 2013a; Franks and O'Neill, 2016), I developed the following hypotheses:

H1: The female writing style will be defined by its use of an emotional approach, personal stories, relatively few statistical data and few evaluative phrases in ice-hockey reporting.

H2: The male writing style will typically use a greater amount of statistical data and include evaluations of players and games in ice-hockey reporting.

To test my hypotheses, I utilized a quantitative content analysis of the data I gathered. Content analysis is considered one of the most popular and expanding techniques of quantitative research (Neuendorf, 2002). Neuendorf (2002) defines a 'quantitative' approach as an analysis that aims to determine the number of occurrences of variables in individual categories, which are then processed using statistical methods. Content analysis is structured, selective process that involves the systematic assignment of communication content to categories according to certain rules (Riffe et al., 2005). A prerequisite for such analysis is assembling data that has been collected using a coding technique. A coding book provides explicit rules for the coding procedure and contains precise instructions for coding all variables examined. The findings are then entered in a record sheet (Riffe et al., 2005).

The quantitative analysis examined 217 sports reports created by four reporters (Hana Ježková, Markéta Pernická, Jakub Stařík, Petr Šašek) working in the sports department of Czech Television and two journalists (Barbora Žehanová, Robert Sára) who were employed by the newspaper *Mladá fronta DNES*. I utilized 110 audio-visual news reports from *Branky, body, vteřiny* (*Goals, Points, Seconds*) (hereinafter BBV), 57 audio-visual reports from *Hokej den poté* (*Ice-Hockey, the Day After*) (hereinafter HDP) and 50 written articles from the sports departments of *Mladá fronta DNES* (hereinafter *MF DNES*) and its online version *iDNES.cz*.

The analysis of television reporting comprised the 2015–2016 and 2016–2017 ice-hockey seasons. Both sports TV programmes (BBV and HDP) are broadcasted by the sports department of Czech Television. The audio-visual reports were acquired thanks to my access to Czech Television's archives and research room and were fully transcribed. To identify specific examples of audio-visual reports, I recorded the programme title (BBV or HDP), the editor's first and last name (Hana Ježková = HJ, Markéta Pernická = MP, Jakub Stařík = JS, Petr Šašek = PŠ) and the date of broadcast (e.g. BBV HJ 2015-11-13; HDP PŠ 2015-12-07).

In the part of my research dealing with written journalism, I examined articles from 2007 to 2009 as I wanted to limit my samples of written word and TV reporting to two complete seasons. I chose that time span because the female journalist Barbora Žehanová left the *MF DNES* newsroom in 2009 and since then, no other woman has worked for the newspaper's sports department or any other Czech newspaper's sports section and there were no later reports I could analyse. However, the difference in the time periods had no impact on the writing styles. The use of expressions and narrative structures was similar in both time periods.

The articles (in *MF DNES* and *iDNES.cz*) were acquired using Newton Media Search. The initials of the authors (Barbora Žehanová = BŽ, Robert Sára = RS) and

the date of publishing were recorded. I focused the main attention of my analysis on those language elements that according to previous research (Schoch, 2013a) characterise the male and female writing style. In all 217 reports and articles, I recorded the occurrence of expressions of four categories:

- 1) statistical data,
- 2) phrases evaluating the performance of players and teams,
- 3) emotional phrases and personal stories,
- 4) original expressions.

The first category included expressions related to performances of players as individuals or teams as a whole, which contained numerical information (e.g. HDP HJ 2016-10-24: 'he appeared in all fifteen games in Brno and collected eight points'; BBV MP 2015-09-29: 'fourth defeat in a row'; BBV JS 2017-01-30: 'played only 20 games for Sparta'; BBV PŠ 2016-01-06: 'scored six goals in the last four games'; BŽ 2008-09-18: 'Kladno did not lose only one of its four last matches'; RS 2009-03-24: 'he made seven saves after 36 seconds', etc.).

The second category contained expressions evaluating the performance of players and teams (e.g. BBV HJ 2017-03-09: 'Pilsen flew into the match very actively'; HDP HJ 2016-02-08: 'the defence is relatively consistent'; BBV MP 2016-01-15: 'the final period was very nervous from both sides'; HDP JS 2016-10-24: 'fearless team performance'; BBV PŠ 2015-12-06: 'he aimed exactly after a great play'; BŽ 2008-09-13: 'it wasn't an easy job'; RS 2009-03-06: 'Pardubice defended perfectly', etc.).

According to the existing literature, the use of expressions that fall into those two categories, and which frequently include facts, statistics, technical terms, and evaluation, is typical of what Gill (2007) and Schoch (2013a) call the male writing style.

On the other hand, the third category, which highlights emotions, personal stories about particular players and matters such as their health condition, is considered typical of the female treatment of news (e.g. BBV MP 2016-04-12: 'but the joy of Třinec lasted only a minute and ten seconds'; HDP MP 2015-10-14: 'a partner of tennis player Petra Kvitová'; HDP JS 2015-12-14: 'he had to refuse due to injury'; BBV PŠ 2017-04-09: 'he cheered Budějovice for the second time'; HDP PŠ 2017-01-23: 'Zohorna spent his big evening in Hradec Králové'; BŽ 2008-04-11: 'forward Radek Bělohav will have bittersweet memories'; RS 2008-03-20: 'the game offered drama, beauty and a wonderful atmosphere', etc.).

Finally, the fourth category was comprised of unconventional expressions with which the journalists tried to enrich their reports. Such expressions are traditionally considered to be the part of a stereotypically male approach to news writing. For each author, I recorded phrases that did not appear in reports of other colleagues (e.g. BBV HJ 2016-17-03: 'unpleasantly met a hockey stick'; BBV JS 2016-12-11: 'Litvínov's castle was conquered'; HDP JS 2016-11-28: 'Mr. Flawless'; HDP PŠ 2016-11-28: 'Zlín experienced not only black Friday, but also black Tuesday and black Sunday'; BŽ 2007-11-20: 'they threw down their gloves and performed a war dance'; RS 2009-03-25: 'as if the hockey players had extra weights in their skates', etc.).

This part of my quantitative analysis involved counting the appearances of these elements in the work of all six journalists. Firstly, I counted the number of expressions in each category used by each journalist. For instance, Ježková used 21 statistical terms, 32 evaluative phrases, 20 expressions describing emotional aspects and personal stories

and six original phrases in her reports for BBV, a total of 79 formulations overall. I then determined the percentage of the total number of expressions used by each journalist that fell into each category, as shown in Figures 1, 3, and 5 (e.g. Ježková's phrases used in BBV broke down into 26.58% statistics, 40.51% evaluative words, 25.31% phrases regarding emotions and personal stories and 7.60% original connections).

In the case of audio-visual reports for HDP and written articles for *MF DNES* and *iDNES.cz*, I extended the analysis by categorizing reports according to select types of texts:

- 1) a game report,
- 2) a story about a player or team,
- 3) an extraordinary event,
- 4) a pre-game analysis (appeared only in the written articles).

Compared to the other types of reports, game reports contained more details and more statistics about a particular match, and used more expressions evaluating the players' and teams' performance. The purpose of pre-game articles was to review a team's past games, evaluate its performance, and give readers more information about current condition of players. In stories focusing on particular players or teams, I noticed mainly details about players' careers and additional information about specific teams. Finally, I identified texts with various extraordinary topics, such as a reduction in players' salaries, a club's moving to a new ice rink, and others. While game reports and pre-game analyses are believed to be a typically male area of sports journalism, stories about players and teams or news about extraordinary events (beyond matches themselves) are perceived to be a more female area of interest (Schoch, 2013a).

All the journalists' reports for *HDP* and articles for *MF DNES/iDNES.cz* were thoroughly examined and were classified into the pre-selected categories. The findings indicated a variety of different types of articles within the work of all six journalists.

RESULTS

Branky, body, vteřiny (Goals, Points, Seconds)

In the first part of my research, I focused on 110 ice-hockey reports aired by the news programme *Branky, body, vteřiny*. Hana Ježková produced the fewest outputs (20) in group; the most reports were created by Markéta Pernická (35). I also analysed 27 reports by Jakub Stařík and 28 by Petr Šašek.

As Figure 1 illustrates, I recorded the largest percentage use of expressions containing statistical data and emotional phrases in the work of Hana Ježková (26.58% statistics and 25.31% expressions connected to the emotions). However, the difference in the percentage of statistical expressions used by Ježková (26.58%), Stařík (25.18%) and Šašek (24.33%) was minor. The lowest frequency of statistics was ascertained in Pernická's outputs (13.10%), even though she was the author of the largest number of analysed reports. On the other hand, of the four journalists, Pernická used evaluative expressions the most (58.62%), and she also devoted the most space to original phrases (13.79%). In comparison, Ježková, Stařík and Šašek chose more neutral expressions for their reports. The results indicate that Stařík's and Šašek's use of all variables of expression was very similar.

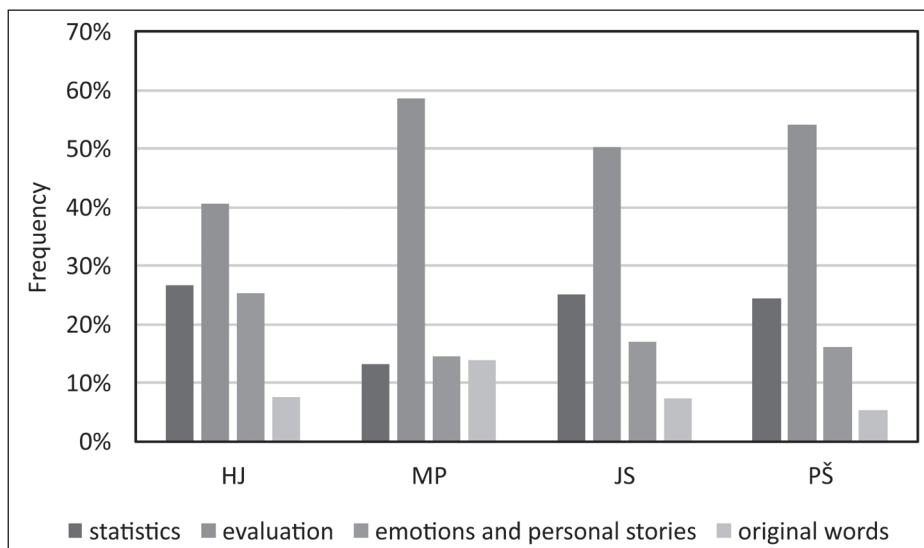


Figure 1 Frequency of use of particular kinds of expressions by selected journalists in BBV (as percent of all counted expressions used by each)

Hokej den poté (Ice-Hockey the Day After)

The second part of my research dealt with more creative and opinion-based reports created for the programme *Hokej den poté (Ice-Hockey the Day After)*. This research contained more reports made by men: Jakub Stařík (18), Petr Šašek (17), Hana Ježková (12) and Markéta Pernická (10).

Similarly to the analysis of the reports aired on BBV, I paid attention to the appearance of the same expressive elements in four categories. I extended the research by counting the kinds of reports produced by each journalist (game reports, stories about a player or team, and extraordinary reports).

The most game reports were created by Stařík (13), followed by Ježková (6) and Šašek (4). Pernická authored just one game report. As summarized in Figure 2, the category of stories about a player or team was dominated by Šašek (12) and Pernická (9). Ježková and Stařík were the authors of five and three such stories, respectively. Reports about an extraordinary event were uncommon, and Pernická did not create even one. Figure 2 indicates that Stařík's and Pernická's work conform to the theory that men focus on game reports while women prefer player or team stories. Stařík's output was heavily biased toward game reports while Pernická's reports were predominantly dedicated to stories. However, the genre classification of Šašek's work led him more in the direction of what has been perceived as the 'female' writing style, while Ježková's work was rather balanced between genres in both main categories.

Although Šašek focused primarily on stories about players or teams, he covered them with an accent on facts and statistical data. Such expressions were 54.32% of the total counted expressions he used. On the contrary, as Figure 3 shows, Šašek's output included the lowest frequency of evaluative words (27.16%) and the second lowest frequency of emotional expressions (13.59%). Pernická's work was

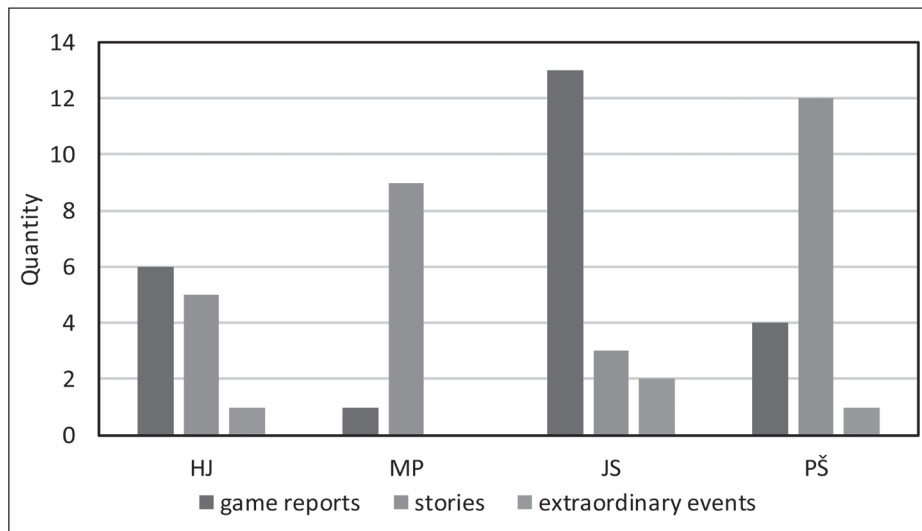


Figure 2 Genre of reports produced by selected female and male journalists in HDP

dominated by the category of phrases describing emotions and personal stories (37.81%). The highest frequency of expressions in her work concerned detailed information about players and their careers, including their health conditions. She also often used a narrative element. The second highest occurrence of statistics was in Ježková’s reports (44.26%), who also frequently applied evaluative phrases (34.42%). The women did not use any original phrases in their work. Stařík (7.46%) and Šašek (4.93%) were most represented in that category.

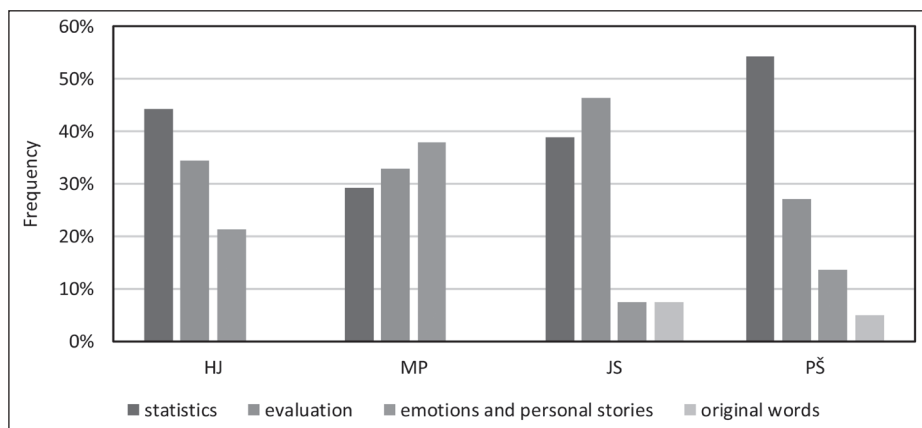


Figure 3 Frequency of use of particular kinds of expressions by selected journalists in HDP (as percent of all counted expressions used by each)

MF DNES, iDNES.cz

The sample of written articles about the Czech Extraliga consisted of 26 reports by Barbora Žehanová and 24 texts by Robert Sára. These articles were divided into four categories: a game report, a story about a player or team, a story about an extraordinary event, and a pre-game analysis. As in the case of the audio-visual reports, I were interested in the appearance of statistics, evaluative words, descriptions of emotions and personal stories, and unusual phrases.

I observed a difference in the journalists' choice of type of article. As Figure 4 indicates, Sára produced 14 game reports, three pre-game analyses, four stories about a player or team and three articles about extraordinary event, out of a total of 24 texts he authored. Žehanová wrote five game reports, four pre-game articles, 12 player or team stories and five reports on extraordinary events, out of a total of 26 texts.

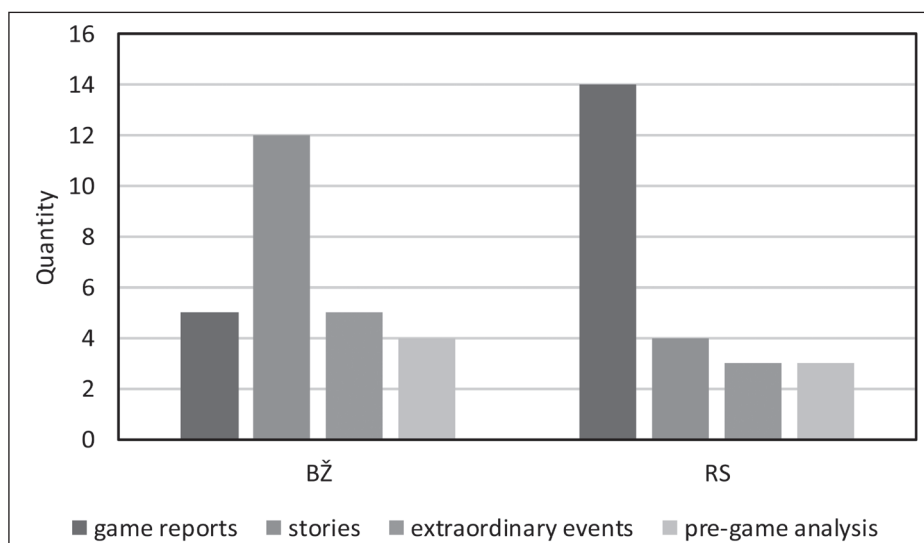


Figure 4 Genre of reports produced by selected female and male journalists in MF DNES/iDNES.cz

Even though their choice of article types differed markedly, Žehanová's and Sára's writing styles were very similar in terms of their use of language expressions contained in the four pre-selected categories (see Figure 5). A high frequency of evaluative phrases was typical of their reports. The second most represented category of expressions in their work was that connected to emotions, especially descriptions of a game's atmosphere, players' behaviour, personal information about particular players, and their health condition. However, Žehanová used more statistical data (BŽ = 23.95%, RS = 21%), whereas Sára engaged more in emotional phrases (RS = 34.5%, BŽ = 31.14%).

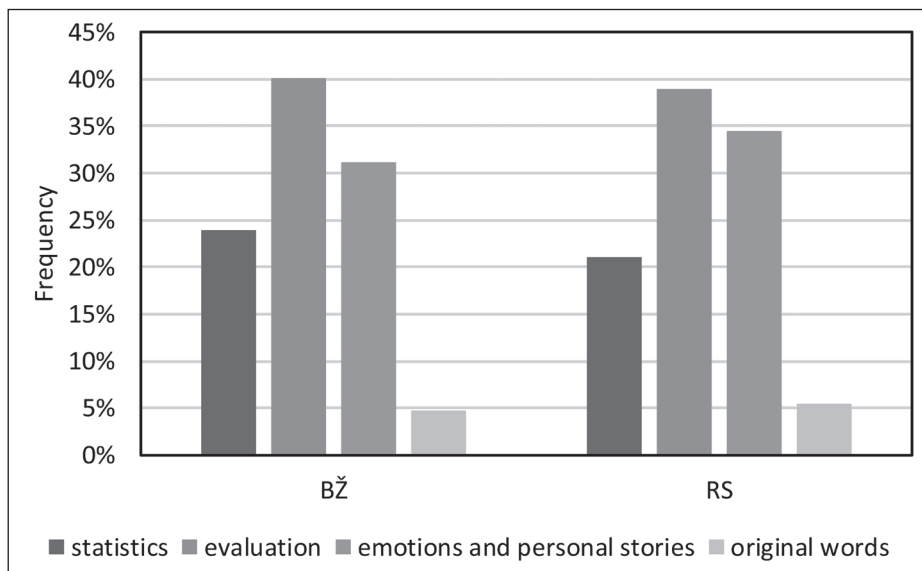


Figure 5 Frequency of use of particular kinds of expressions by selected journalists in MF DNES/ iDNES.cz (as percent of all counted expressions used by each)

DISCUSSION AND CONCLUSION

The aim of my analysis of sports reports and articles was to reveal differences – if any – between the female and male writing style in the case of Czech sports journalism, particularly in one of the most masculine domains, ice-hockey reporting. In my literature review (Chambers et al., 2004; Hardin and Shain, 2005a, 2006; Schoch, 2013a), I repeatedly encountered the claim that female sports journalists deal more often than men with soft news comprised of narrative expressions and phrases related to emotions, while using less statistical data and analytical approaches (Schoch, 2013a).

However, my results showed us that the use of statistical data is not the exclusive domain of men, as well as women do not focus primarily on descriptions of emotions and personal stories. In the audio-visual programmes *Goals, Points, Seconds (BBV)* and *Hockey the day After (HDP)*, I noticed a similar tendency by Ježková, Stařík and Šašek to include statistical data, and Pernická's reports typically included phrases related to performance evaluation. This research did not prove unequivocally that the female reporters chose significantly more emotional elements and focused more on personal stories or the health condition of players. For instance, in the case of Stařík's and Šašek's work for BBV, the men's frequency of use of emotional phrases was even higher than that of one woman, Pernická. If I compare the results of my analysis of the pieces of news in BBV and the more creative, opinion-based reports in HDP, it is evident that each journalist's usage of statistics, expressions and narrative components differed also according to the genre of their final work, not simply according to their personality.

Analysis of written texts for *MF DNES* and *iDNES.cz* produced results opposite to my hypotheses. Despite the fact that Žehanová and Sára wrote their articles in a similar way, Žehanová's work contained a larger incidence of statistical data and performance evaluation, while Sára's articles had a higher frequency of emotional phrases and original expressions. The difference in the frequency with which the expressions appeared was not high, and we cannot speak about any specific 'male' or 'female' writing style in this case.

In addition, the journalists' choices regarding the types of reports and articles to write did not confirm that women solely adopt stories, whereas men prefer to deal exclusively with game reports and pre-game analysis. This was the case only for *MF DNES* and *iDNES.cz* reporting. In the TV news, my research shows that Ježková created more game reports than Šašek, and moreover, Šašek was the author of the largest number of player and team stories of all the TV reporters. However, this study did not examine the possible influence of editors who might decide which journalists would cover which topic.

In summary, my data did not persuasively support either of my two hypotheses. I did not find that the female sports journalists brought primarily 'emotional' and 'human' angles to their stories, while avoiding statistics and evaluative expressions, which traditionally are attributed to men's journalistic work (Schoch, 2013a). The results suggested that the use of specific phrases describing a game's atmosphere, emotions, or personal information about a player was not strictly limited to reporting by women, while technical analysis, facts, and figures were not solely characteristics of men's journalistic output. On the basis of my findings, I suggest that to the extent they exist, the so-called 'female' and 'male' writing style is not as distinct in the Czech sports media as previous foreign studies have found it to be in other countries (cf. Schoch, 2013a; Franks and O'Neill, 2016).

In recent years, journalism has become more opinion-based and narrative than strictly factual and analytical. Even though we can still find topics which seem to be dominated more by men than women, and vice versa, my data did not confirm that sports journalists write their stories in a specific 'male' or 'female' way. It is my belief that the individual style of a journalist has greater influence on his or her reports and use of language than his or her gender.

Taking into account the results of this paper and the fact that female and male sports writing may not differ as much as heretofore believed, stereotyping of women and underestimating their proficiency within sports journalism may cease. Although sports journalism used to be dominated by men, the number of female journalists in practice, especially in TV broadcasting, is rising, and women play an increasingly important role in the co-determination and standardization of the norms of sports journalism. The 'female' writing style and 'feminine' topics seem to be something that has been forced into being by the circumstances of their employment rather than the innate qualities of female journalists. Because this study focused on the prestigious career of sports journalism in the Czech Republic, which was and still is dominated by men, my finding that there is no specific male or female style of reporting is important. It indicates that the work of journalists is most influenced by their own personality, and that therefore women as a class should not be limited to covering feminine sports stories in a female writing style.

Still, this study is the first of its kind and we need to wait for further research in other regions and sports that will either support or disprove that my results indicate a trend. For future research in this field of study, I recommend that the available data be enriched by interviewing editors and journalists who could explain how they prepare their articles and reports, how they choose specific phrases or elements to use and deal with external factors that may affect their work (e.g. time pressures, colleagues, editors, and sources of information).

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