

From Medals to Minutes: Time on Camera for Men and Women During the 2020 Tokyo Olympics on NBC Television

Zachary W. Arth,¹ Mackenzie P. Pike,² and James R. Angelini³

¹Communication Department, Marist College, Poughkeepsie, NY, USA; ²Department of Communication Studies, University of Texas at Austin, Austin, TX, USA; ³Department of Communication, University of Delaware, Newark, DE, USA

This study assessed the time on camera dedicated to men and women athletes at the 2020 Summer Olympics in Tokyo. An analysis of all of NBC's Olympic programming, consisting of both the flagship prime-time broadcasts and the additional content on their network, yielded nearly 230 hr of Olympic content to code. In the 62 hr of prime-time coverage, women received 57.95% of the time on camera. During the non-prime-time coverage, which spanned 167 hr, women again received the majority of clock time, accounting for 55.22%. In addition, differences by sport were uncovered with the major differences occurring in gymnastics and beach volleyball, both of which saw much more hours dedicated to the women's competitions. Utilizing agenda setting as the theoretical framework for this study, ramifications for these broadcast trends and differences are discussed.

Keywords: agenda setting, gender, prime time

It is not hyperbolic to refer to the Olympics as “the biggest show on television” (Billings, 2008). In the United States, while the viewership for a typical Super Bowl can exceed one third of the country, the overall tune-ins for the broadcasts of an Olympic Games by the end of the fortnight will far exceed anything else. This remains to be true even as viewership for the 2020 Tokyo Games saw a major decline from not just the 2016 Games, but also the lowest rating since the 1980s (Adgate, 2021). One potentially contributing factor worth noting is that the 2020 Olympics were not actually held in 2020. As was the case for many sporting events across the globe, the Summer Games were actually held in 2021 after an initial postponement due to the COVID-19 pandemic; the branding, however, remained the same and thus these were known as the 2020 Tokyo Olympics, regardless (Gale, 2020). When discussing viewership in the context of the Olympics, it is nearly always in direct reference to the prime-time broadcast on NBC in the United States. Be that as it may, once the broadcasts on NBC's additional television channels (NBC Sports Network, USA Network, and CNBC, to name the most prominent) and their newly debuted Olympic content on the Peacock streaming service are accounted for, Olympic viewership is certainly much greater than the numbers for just the prime-time broadcast.

These additional broadcast options have only increased throughout the years of Olympic coverage, as well. Indeed, for the 2020 Games, NBC stated that they would be presenting over 7,000 hr of Olympic coverage across their many affiliated networks and platforms, the most they ever have (NBCUniversal, 2021). Therefore, some decisions had to be made by NBC. For instance, while 7,000 hr of total content are being presented, roughly 70 of those hours belong to the prime-time broadcast on NBC which garners the largest audience and, consequently, receives the highest viewership. Thus, NBC will prioritize the content they deem most desirable by placing it during the prime-time window on their flagship network in what is certainly an act of agenda setting. And, as has been seen in past research, it is possible that the agenda of the

prime-time broadcast is not exactly the same agenda across all Olympic networks and coverage times (Arth et al., 2019).


This research will seek to add to the previous Olympic clock-time literature by, first, assessing the NBC prime-time broadcast which has long been the focus for scholars (see Billings & Angelini, 2019). Such an analysis will allow for a direct comparison to past research which, over the past two Summer Games, has seen the majority of time allotted to women. In addition, given the continuing increase in Olympic content, this study will also assess a portion of that supplemental content, as well. To understand the NBC prime-time agenda is only one part of the overall discussion. What NBC does while “everyone” is watching can tell a story, but whether NBC promotes the same agenda during their non-prime-time hours is meaningful, as well. Such an assessment of the prime-time and non-prime-time NBC broadcasts will allow for an understanding of a more nuanced version of the NBC agenda.

Related Literature

Agenda Setting at the Olympics

Previous studies of Olympic content tend to utilize the lens of agenda-setting theory (McCombs & Shaw, 1972). Indeed, the prime-time broadcast is utilized as the time to promote and feature the major athletes, storylines, and sports during each Olympic Game.

Of course, these are only the major athletes, storylines, and sports because they are featured in prime time each night. Therefore, viewers may not be explicitly told that these sports matter and others do not, but they are certainly told to think about the content seen in prime time when millions of people are watching each night (Cohen, 1963). Should either women or men be shown more frequently over the span of an Olympic Games, they will become more accessible in the minds of viewers (Iyengar, 1990). Indeed, in terms of how agenda setting works, prominent agendas become more accessible to heavy viewers and, thus, will not only be what those viewers think about, but those agendas will also be seen as what is most important and may produce stronger affect in viewers (Kiousis & McCombs, 2004).

Arth (zachary.arth@marist.edu) is corresponding author,  <https://orcid.org/0000-0002-3586-2423>

Over the past few decades of this program of Olympic research, agenda setting has been the framework utilized many times. Agendas have been uncovered as it pertains to the prioritized sports; Angelini and Billings (2010) uncovered that 90% of prime-time Summer Olympic broadcasts featured just five sports. Nationalistic agendas have also been uncovered as American athletes have been found to receive up to four times more coverage than their medal count would suggest (Angelini, Billings, & MacArthur, 2012). However, the most prominent agendas assessed by scholars have pertained to the sex equity, or lack thereof, in the prime-time Olympic broadcast. While many of these past studies will be discussed in greater detail in the following section, the general theme has been that men receive the overwhelming majority of Olympic coverage. However, upon receiving more camera time than men for the first time at the 2012 London Games, women were allotted the bulk of coverage at two of the next three Olympic Games (Billings & Angelini, 2019). Thus, this research will assess whether or not this recent trend of prioritizing women athletes will continue.

As mentioned previously, Olympic coverage is now much more than just the prime-time NBC broadcast. Indeed, the additional channels and coverage times will also feature their own agendas in some way. These alternative broadcasts have not received as much attention in the past literature, largely because they have not been around as long. Arth et al. (2019) assessed not only the prime-time NBC broadcast of the 2018 Winter Games, but also all of the additional content featured on other channels, as well as the non-prime-time NBC content. Interestingly, it was found that while women received the majority of the prime-time coverage, men received an even-larger proportion of the additional coverage. Thus, it was suggested that there are varied agendas; while NBC might want to promote women on their prime-time broadcast, this charge does not appear to apply to their additional programming. The study at hand is also interested in some of the additional Olympic programming, but instead of attempting to capture all Summer Olympic content, all of the content on NBC is, instead, what is up for analysis. In addition, with these Games taking place in Tokyo, NBC was confronted with a substantial time zone difference, thus hindering their ability to show the majority of events live in prime time, instead relying on tape delay. This in turn suggests that the events chosen for the prime-time broadcast are even more carefully selected by NBC than they would be if they were happening live, indicating an additional layer of agenda setting and, thus, a more careful crafting of the desired narrative.

Past Olympic Clock-Time/Sex Research

Olympic broadcast coverage is a unique event for women in sport. During non-Olympic sports broadcast periods, including non-Olympic years, and the months before, and after the Olympic Games, women are typically given an extremely small fraction of coverage on sports broadcast networks (Messner et al., 2010). This disparity in the coverage of men and women in professional and college-level broadcasted sports is of continuing concern to scholars in sports media and gender studies. However, the Olympics are a unique sports media event for gendered coverage, as women and their sporting events are given significantly more airtime than they experience annually. From the first examinations of Olympic broadcast clock time by scholars it was clear that, while women were given more comparative airtime than was seen in sports broadcasts outside

of Olympic coverage, it still was not equal to the focus emphasized on male sports (see Eastman & Billings, 1999). Years of continued examination of time devoted to covering men and women sports in the Olympics has shown a steady increase in the attention given to women's sports, culminating in the London Games in 2012 being the first-ever Olympic Games in which women's events were allotted more prime-time television time than men's events (Billings et al., 2014a).

The first televised Olympic Games in the United States was the 1960 Winter Olympics in Squaw Valley, followed shortly by the 1960 Summer Games in Rome, 60 years after women participated in the first Olympic games (1900 Paris Games; Billings et al., 2014a). Additionally, beginning with the 1994 Lillehammer Winter Games, U.S. viewers have had the opportunity to tune into the largest event in sports every 2 years for the Winter and Summer Olympics. Today, prime-time Olympic coverage in the United States typically airs from about 8:00 p.m. to 11:00 p.m. EST, aside from Sundays which begin at 7:00 p.m. EST, on NBC. prime-time coverage has been of particular interest to scholars due to the high viewership and potential impact of the content reaching millions of individuals. While the 2020 Tokyo Games drew the smallest audience in decades, viewership still averaged 15.5 million per night for prime-time coverage (Hsu, 2021). Therefore, the primary broadcast of interest of scholars examining airtime for men and women during the Olympics focuses on prime-time coverage. The expansion of broadcast media to include increased non-prime-time coverage, social media coverage, and live streaming opportunities have made more events accessible to viewers and, therefore, given viewers more opportunities to tune into less popular events and preliminary rounds. Scholarship on Olympic coverage has since expanded to include examinations of non-prime-time coverage (Arth et al., 2019).

The first quantitative examination of Olympic clock time between men's and women's sports examined the 1992 Barcelona Olympics (Higgs & Weiller, 1994), revealing that men received 56% of broadcast coverage compared to women who received 44%. McCollum and McCollum's (1980) examination of advertisement time and revenue in the 1976 Montreal Olympics observed that the imbalance in men's to women's sport coverage was closer to a 3:1 ratio. While the 1992 Olympic coverage spread is an improvement to the 1976 observation, subsequent studies over the next two decades revealed that there was little to no change in this imbalance seen between men's and women's coverage. Indeed, this can be seen in examinations of the 1994, 1996, and 1998 games (Eastman & Billings, 1999), again in 2000 (Billings & Eastman, 2002; Tuggle et al., 2002), 2004 (Billings & Angelini, 2007), and in 2008 (Angelini & Billings, 2010; Billings & Angelini, 2019; Billings et al., 2010). Across all studies for nearly two decades of Olympic coverage, men and their sports have consumed 4%–9% more time on air than women athletes and their sport. The 2012 London Olympics, however, saw the first reversal of the trend as women were shown on prime-time NBC Olympic coverage for more overall time than men (54.8%–45.2%; Billings et al., 2014a).

In subsequent years, scholars have continued to examine the time that broadcast networks spend airing both men's and women's sport, along with examining the salience of the coverage and the descriptions used to describe athletes of different genders (Billings, 2008; Billings & Angelini, 2019). While the majority of studies have focused on the Summer Olympic event coverage, similar trends have also been examined in the Winter

Olympic events to an even larger extreme (see Billings, 2008). The average gap between coverage of men's and women's sports at the Winter Games ranges into the 20%–35% range, with much more coverage being focused on men's sports (Angelini et al., 2012, 2013; Billings et al., 2008; Billings & Eastman, 2003). The 2014 coverage of the Winter Olympic games in Sochi showed a significant change in the balance of coverage for men and women, with women accounting for 47.7% of air time. Finally, the 2018 Winter Games saw women receive more coverage than men during the prime-time broadcast for the first time (Arth et al., 2019). While still not necessarily comparable to the strides made in coverage of the Summer Olympics, it is a significant improvement in the coverage of women in winter sports.

The current state of sex equity in Olympic coverage of sports is promising, especially when considering the amount of coverage women's sports receive in sports media outside of the Olympic Games. Over the last several decades, the number of women who compete in the Olympic Games has increased, coming closer to an even split between men and women athletes; indeed, Tokyo 2020 saw women make up 49% of all Olympians competing (Elliott, 2021). In addition to the increasing number of athletes competing, the International Olympic Committee (IOC) took strides to create equal competition opportunities for men and women in the last 30 years, where previously men had more opportunities to compete in Olympic events than women. While both of these factors certainly may have contributed to the increase in equality of coverage for athletes, there are two remaining factors to consider: medal count and sport coverage.

It has been proposed that the increase in coverage for women's Olympic sports is a result of the increased medal count garnered by women in the Olympics. Indeed, in 2008 women athletes won 48% of the Olympic medals earned by the U.S. Olympic team (Sports Reference, 2008) and in 2012 women accounted for 55.7% of overall medals won for the United States and 63% of gold medals won (Billings et al., 2014b). While the success of women in sport may be a factor in increased coverage, it is important to consider not just how much time is spent covering women's sports, but *which* women's sports are getting the bulk of coverage. An examination of the spread of sports focused on during prime-time coverage reveals concerning gendered implications of oversexualization and an emphasis on sports that are considered *socially acceptable* (Davis & Tuggle, 2012; Metheny, 1965). Indeed, a large portion of the airtime given to women athletes consists of those participating in sports that involve scant clothing as uniforms (i.e., beach volleyball and gymnastics). Interestingly, there has been speculation that the 2020 Games may be one of the last to see such revealing uniforms for women. A number of women across different sports, both Olympic and otherwise, have spoken out on the uniforms they are to wear and have made changes accordingly (Siemaszko, 2021).

The other women's contests that tend to receive the most airtime are those which align with the feminine ideal of performance (those that do not involve physical contact or explosive strength-based movements; i.e., gymnastics and swimming; Kane, 1989); this includes focus on individual rather than team events, as they are more likely to involve less physical contact (Tuggle & Owen, 1999). Therefore, despite strides taken in coverage equality, we must consider whether this reflects true gender equality in Olympic coverage and the implications this disparity has for athletes and viewers.

Sex Equity in Sports

Historically, competitive sports have been viewed as a space that is categorically male. As an avenue to project dominance, strength, and fitness, women were excluded from this space to preserve their delicacy and femininity. In many ways, sports have been one of the primary mechanisms to reinforcing hegemonic masculinity, which includes the enactment and reinforcement of women's submission and the domination of men, both physically and socially (Connell & Messerschmidt, 2005). Indeed, "the institutions of sport and mass media are two of the primary forces helping to preserve hegemonic masculinity in the democratized world" (Kian et al., 2011, p. 4). Therefore, we must consider the strides women take toward equality on sport not only as such, but as strides toward institutional, social, and systemic change toward a more equal and inclusive future for women in and out of sport.

In recognition of the continuing disparity in opportunities and portrayal of women in the Olympics, in 2017 the IOC chartered a Gender Equality Review Project, which released a report in 2018 that detailed 25 Gender Equality recommendations in an effort to reach gender balance in the Olympics (IOC, 2018). The IOC recognized that despite the balancing of women's participation in the events and in IOC leadership, and the increased number of initiatives to provide opportunities for women and girls in sport, there is still more work to do. The project's goals were to "push gender equity globally with action-oriented recommendations for change" with the understanding of the research documenting that "gender equality within the Olympic Movement creates opportunities for women to participate in public society and allows for women to contribute in roles of influence and decision-making responsibilities" (IOC, 2018, p. 4).

The five key themes outlined by the IOC's report for emphasis and future initiatives were: sport, portrayal, governance and human resources, monitoring, and communications. Of particular interest to this study is *portrayal*. The first recommendation for portrayal is *balanced media portrayal of both genders*. Along with goals to create toolkits for broadcasters with gender-specific terminology and guidelines for the portrayal of men and women in sports (i.e., conscious language use), an action item of this key recommendation involves the monitoring of "the quantity of material covering women's sports" (IOC, 2018, p. 16). It is of note that these recommendations and enforcements only extend to the Olympic Broadcasting Services and the Olympic Channel and therefore there is no governing body encouraging each country's broadcast network to practice gender equality in their broadcasting. Therefore, it is still of interest and of importance for researchers to examine portrayal of women in the Olympics on their local broadcasting networks. Heeding the IOC's call for continued monitoring of the coverage men and women receive in the Olympics, with a particular focus that stems from previous research on prime-time and non-prime-time coverage in the United States, this project proposes the following hypotheses and research question. While previous research on the prime-time Olympic broadcast have uncovered trends over the past decade that skew toward women (Billings & Angelini, 2019), the sole non-prime-time Olympic study (Arth et al., 2019) revealed that men received more coverage. Thus, the two hypotheses that feature different predictions.

H1: Within the NBC prime-time program, women athletes will receive more clock time than men athletes.

H2: Within the remaining, non-prime-time NBC programming, men athletes will receive more clock time than women athletes.

RQ1: Will the clock time for men and women athletes significantly differ between the NBC prime-time program and the remaining, non-prime-time NBC programming?

Method

A total of 229 hr of Olympic coverage was recorded for the purposes of this analysis. Of the total coverage recorded, 100% of the NBC prime-time programming accounted for 67 hr. The remaining, non-prime-time NBC programming, therefore, accounted for 162 hr of the total amount recorded. Those 162 non-prime-time broadcast hours consisted of 100% of the NBC Daytime programming, the nightly coverage that typically began at midnight EST, the weekend coverage that would run from 8:00 a.m. until 6:00 p.m. EST as well as the edited replays of the prime-time broadcast, typically beginning at 2:00 a.m. EST. The edited replays of the prime-time broadcasts were included in the non-prime-time NBC category due to both its timeslot, as well as its edited nature, thus reinforcing the moments prioritized by NBC.

Much of the recording took place by way of a broadcast satellite service provider and the associated digital video recorder. In addition, some content was streamed live by way of the NBC Olympics website which allowed access to all channels and broadcasts of Olympic content under the NBC Universal umbrella. These streams also allowed for pausing and rewinding, thus allowing for content to be coded with relative ease. For the NBC prime-time sample, the 67 hr of the NBC prime-time programming were coded. For the non-prime-time NBC sample, the remaining 162 hr were coded.

Coding itself then examined the total amount of time dedicated to men's, women's, and mixed sex sports. Using a stopwatch and the time codes on the video files, the researchers measured, to the second, the total amount of time dedicated to each event, making distinctions between whether the event was men's, women's, and mixed sports. Time spent on the event itself, at the athletic site for an event, on a profile of a specific athlete or team, host commentary about a specific athlete or sport, and promos for future broadcasts were recorded.

Results

Content analysis of NBC's prime-time coverage of the 2020 Tokyo Olympic telecast resulted in roughly 43 hr and 30 min of coded coverage. Hypothesis 1 predicted that women would receive more coverage than men in terms of the amount of clock time they receive during the prime-time broadcast of the 2020 Summer Olympics. To test this hypothesis, chi-square tests were used; for the purposes of the calculations, time was converted into minutes. Table 1 features the full results divided by both sport and sex.

As outlined in Table 1, all 39 Summer Olympic sports were featured during NBC's 17 nights of prime-time coverage. Overall, after excluding mixed events, women received 57.95% of the prime-time coverage, significantly more than the 42.05% devoted to men ($\chi^2 = 65.63$, $df = 1$, $p < .001$, $\phi = 0.16$). Of the 39 sports to receive coverage, only six of them received an hour or more of total coverage between men's, women's, and mixed events. Of those six sports, women received more coverage than men in beach volleyball ($\chi^2 = 245.22$, $df = 1$, $p < .001$, $\phi = 0.96$) and gymnastics ($\chi^2 = 156.39$, $df = 1$, $p < .001$, $\phi = 0.57$). Men received more coverage than women in diving ($\chi^2 = 38.72$, $df = 1$, $p < .001$, $\phi = 0.49$). There were no significant differences in clock time for men and women in basketball, swimming, or track and field. Of the sports

that received less than an hour of prime-time coverage, women received more coverage in soccer ($\chi^2 = 11.48$, $df = 1$, $p = .001$, $\phi = 0.99$), volleyball ($\chi^2 = 14.18$, $df = 1$, $p < .001$, $\phi = 0.80$), and water polo ($\chi^2 = 12.03$, $df = 1$, $p < .001$, $\phi = 0.82$) while men received more coverage in skateboarding ($\chi^2 = 30.15$, $df = 1$, $p < .001$, $\phi = 0.87$) and triathlon ($\chi^2 = 10.35$, $df = 1$, $p = .001$, $\phi = 0.65$). Thus, H1 was supported; women athletes received more clock time during the prime-time broadcast than men.

Content analysis of the remaining non-NBC prime-time coverage of the 2020 Tokyo Summer Olympics resulted in roughly 107 hr and 25 min of coded coverage. Hypothesis 2 predicted that men would receive more coverage than women in terms of the amount of clock time they receive during the non-prime-time NBC programming of the 2020 Summer Games. To test this hypothesis, chi-square tests were used with time again converted to minutes for the calculations. Table 2 features the full results divided by both sport and sex.

As outlined in Table 2, 36 total sports were featured over the 17 total days and nights of Olympic coverage on NBC, outside of the prime-time broadcast. Overall, after excluding mixed events, women received 55.2% of the non-prime-time NBC coverage, significantly more than the 44.8% devoted to men ($\chi^2 = 67.59$, $df = 1$, $p < .001$, $\phi = 0.10$). Of the 36 sports to receive coverage, 17 of them received at least 1 hr of total coverage between men's, women's, and mixed events. Of those 17 sports, two events feature women only, artistic swimming and rhythmic gymnastics, and one, equestrian, features only mixed sex competition. Of the remaining 14 sports, women received significantly more coverage than men in beach volleyball ($\chi^2 = 10.06$, $df = 1$, $p = .001$, $\phi = 0.13$), cycling ($\chi^2 = 30.26$, $df = 1$, $p < .001$, $\phi = 0.31$), diving ($\chi^2 = 30.31$, $df = 1$, $p < .001$, $\phi = 0.30$), gymnastics ($\chi^2 = 22.51$, $df = 1$, $p < .001$, $\phi = 0.24$), rowing ($\chi^2 = 13.81$, $df = 1$, $p < .001$, $\phi = 0.35$), volleyball ($\chi^2 = 64.73$, $df = 1$, $p < .001$, $\phi = 0.27$), and water polo ($\chi^2 = 28.69$, $df = 1$, $p < .001$, $\phi = 0.27$). Men received more coverage than women in basketball ($\chi^2 = 107.45$, $df = 1$, $p < .001$, $\phi = 0.37$) and golf ($\chi^2 = 4.22$, $df = 1$, $p = .040$, $\phi = 0.22$). Thus, H2 was not supported; women athletes received more clock time during the non-prime-time NBC broadcasts than men.

Investigating both the NBC prime-time coverage and all of the remaining coverage, Research Question 1 asked whether clock time would differ for men and women athletes between the two forms of Olympic coverage. Overall, proportion of coverage for men and women athletes did differ between the two, as previously discussed: Women athletes received more coverage on both the prime-time ($\chi^2 = 65.63$, $df = 1$, $p < .001$, $\phi = 0.16$) and non-prime-time NBC broadcasts ($\chi^2 = 67.59$, $df = 1$, $p < .001$, $\phi = 0.10$). To increase the granularity of the analysis, adjusted chi-square tests were used to assess differences within the sports themselves for both men and women athletes between the two coverage categories. The sports selected for this analysis were those that received at least 1 hr of combined coverage between both the prime-time and non-prime-time broadcasts. The chi-square tests were adjusted for the purposes of this research question to account for the difference in total amount of coverage for each of the two broadcast samples. Tables 3 and 4 illustrate the differences between coverage of men and women, respectively, within each sport for each type of coverage; also included are chi-square statistics for significant results and the percentage of the broadcast devoted to each sport for each of the two types of coverage (prime-time and non-prime-time).

Results indicate that during the NBC prime-time broadcast, as opposed to the remaining coverage, men athletes were significantly

Table 1 Clock Time for Men and Women Athletes During the Prime-Time Broadcast

Event	Men	Women	Mixed sex	Total	χ^2	<i>p</i>
Archery	0:00:27	0:00:22	0:00:00	0:00:49		
Artistic swimming	—	0:00:32	—	0:00:32		
Badminton	0:00:00	0:00:32	0:00:00	0:00:32		
Baseball/softball	0:02:32	0:02:10	—	0:04:42		
Basketball	1:55:12	1:50:07	—	3:45:19		
Beach volleyball	0:05:02	4:19:56	—	4:24:58	245.22	<.001
Boxing	0:00:34	0:00:30	—	0:01:04		
Canoe/kayak	0:01:09	0:00:55	—	0:02:04		
Cycling	0:00:35	0:01:55	—	0:02:30		
Diving	2:01:04	0:41:41	—	2:42:45	38.72	<.001
Equestrian	—	—	0:03:54	0:03:54		
Fencing	0:00:32	0:00:42	—	0:01:14		
Field hockey	0:00:26	0:00:00	—	0:00:26		
Golf	0:10:10	0:06:07	—	0:16:17		
Gymnastics	1:44:22	6:19:26	—	8:03:48	156.39	<.001
Handball	0:00:34	0:01:34	—	0:02:08		
Judo	0:01:07	0:00:46	0:00:29	0:02:22		
Karate	0:00:01	0:02:04	—	0:02:05		
Modern pentathlon	0:00:24	0:00:39	—	0:01:03		
Rhythmic gymnastics	—	0:01:37	—	0:01:37		
Rowing	0:00:19	0:00:32	—	0:00:51		
Rugby	0:02:02	0:00:44	—	0:02:46		
Sailing	0:00:00	0:00:36	0:00:00	0:00:36		
Shooting	0:00:27	0:00:52	0:00:34	0:01:53		
Skateboarding	0:37:24	0:02:39	—	0:40:03	30.15	<.001
Soccer	0:00:03	0:11:38	—	0:11:41	11.48	.001
Sport climbing	0:00:28	0:00:31	—	0:00:59		
Surfing	0:01:02	0:02:57	—	0:03:59		
Swimming	5:40:07	5:01:14	0:11:33	10:52:54		
Table tennis	0:00:45	0:01:01	0:00:00	0:01:46		
Taekwondo	0:00:19	0:00:20	—	0:00:39		
Tennis	0:02:47	0:00:31	0:00:00	0:03:18		
Track and field	5:07:17	5:22:03	0:01:35	10:30:55		
Trampoline	0:00:21	0:00:00	—	0:00:21		
Triathlon	0:20:06	0:04:14	0:00:00	0:24:20	10.35	.001
Volleyball	0:02:17	0:20:06	—	0:22:23	14.18	<.001
Water polo	0:01:33	0:16:08	—	0:17:41	12.03	<.001
Weightlifting	0:00:04	0:02:03	—	0:02:07		
Wrestling	0:08:37	0:02:56	—	0:11:33		
Total	18:10:09	25:02:40	0:18:05	43:30:54	65.63	<.001
Overall percentage	41.75	57.55	0.7			
When excluding mixed sex	42.05	57.95				

Note. At the time of the 2020 Tokyo Summer Olympics, there are no men's events in the disciplines of artistic swimming and rhythmic gymnastics. Mixed-sex events were held for the disciplines of archery, badminton, judo, sailing, shooting, swimming, table tennis, tennis, track and field, and triathlon. No prime-time coverage was devoted to the mixed-sex events in archery, badminton, sailing, table tennis, tennis, or triathlon. Equestrian is entirely competed as a mixed-sex discipline.

more likely to be shown in diving ($p < .001$), gymnastics ($p < .001$), swimming ($p < .001$), and track and field ($p < .001$). In the non-prime-time coverage, men athletes were significantly more likely to be shown in basketball ($p < .001$), beach volleyball ($p < .001$), canoe/kayak ($p < .001$), cycling ($p < .001$), golf ($p = .029$), rowing

($p < .001$), sport climbing ($p < .001$), volleyball ($p < .001$), and water polo ($p < .001$).

During the NBC prime-time broadcast, as opposed to the remaining coverage, women athletes were significantly more likely to be shown in beach volleyball ($p < .001$), gymnastics ($p < .001$), swimming

Table 2 Clock Time for Men and Women Athletes During the Non-Prime-Time NBC Broadcasts

Event	Men	Women	Mixed sex	Total	χ^2	<i>p</i>
Archery	0:16:07	0:00:12	0:15:19	0:31:38	15.53	<.001
Artistic swimming	—	1:36:31	—	1:36:31		
Badminton	0:00:38	0:00:00	0:00:00	0:00:38		
Baseball/softball	0:02:24	0:01:01	—	0:03:25		
Basketball	9:09:32	4:15:26	—	13:24:58	107.45	<.001
Beach volleyball	4:41:07	6:01:31	—	10:42:38	10.06	.001
Boxing	0:09:07	0:00:15	—	0:09:22	8.39	.004
Canoe/kayak	1:12:21	1:27:06	—	2:39:27		
Cycling	1:48:55	3:26:38	—	5:15:33	30.26	<.001
Diving	1:58:29	3:39:44	—	5:38:13	30.31	<.001
Equestrian	—	—	2:34:37	2:34:37		
Fencing	0:16:44	0:16:52	—	0:33:36		
Field hockey	0:00:38	0:00:00	—	0:00:38		
Golf	0:53:55	0:34:35	—	1:28:30	4.22	.04
Gymnastics	2:28:32	4:02:20	—	6:30:52	22.51	<.001
Handball	0:24:24	0:16:57	—	0:41:21		
Judo	0:01:02	0:00:28	0:00:00	0:01:30		
Karate	0:00:00	0:00:36	—	0:00:36		
Modern pentathlon	0:00:00	0:00:00	—	0:00:00		
Rhythmic gymnastics	—	1:10:08	—	1:10:08		
Rowing	0:36:08	1:15:23	—	1:51:31	13.81	<.001
Rugby	0:01:09	0:21:52	—	0:23:01	18.65	<.001
Sailing	0:00:00	0:00:00	0:00:00	0:00:00		
Shooting	0:00:18	0:00:54	0:00:00	0:01:12		
Skateboarding	1:29:34	1:20:45	—	2:50:19		
Soccer	0:03:52	0:02:14	—	0:06:06		
Sport climbing	0:40:06	0:38:23	—	1:18:29		
Surfing	0:07:52	0:09:10	—	0:17:02		
Swimming	6:14:34	7:03:09	0:14:39	13:32:22		
Table tennis	0:00:00	0:00:23	0:00:00	0:00:23		
Taekwondo	0:00:00	0:00:00	—	0:00:00		
Tennis	0:07:03	0:17:27	0:00:00	0:24:30	4.41	.036
Track and field	5:07:15	5:07:51	0:09:07	10:24:13		
Trampoline	0:19:16	0:00:00	—	0:19:16	19.27	<.001
Triathlon	0:00:00	0:03:48	0:42:39	0:46:27		
Volleyball	5:32:28	9:34:48	—	15:07:16	64.73	<.001
Water polo	2:24:47	4:11:24	—	6:36:11	28.69	<.001
Weightlifting	0:00:00	0:01:04	—	0:01:04		
Wrestling	0:12:35	0:09:49	—	0:22:24		
Total	46:20:52	57:08:44	3:56:21	107:25:57	67.59	<.001
Overall percentage	43.14	53.19	3.67			
When excluding mixed sex	44.78	55.22				

Note. At the time of the 2020 Tokyo Summer Olympics, there are no men's events in the disciplines of artistic swimming and rhythmic gymnastics. Mixed-sex events were held for the disciplines of archery, badminton, judo, sailing, shooting, swimming, table tennis, tennis, track and field, and triathlon. No prime-time coverage was devoted to the mixed-sex events in archery, badminton, sailing, table tennis, tennis, or triathlon. Equestrian is entirely competed as a mixed-sex discipline.

($p < .001$), and track and field ($p < .001$). In the non-prime-time coverage, women athletes were significantly more likely to be shown in canoe/kayak ($p < .001$), cycling ($p < .001$), diving ($p < .001$), golf ($p = .032$), rowing ($p < .001$), skateboarding ($p < .001$), sport climbing ($p < .001$), volleyball ($p < .001$), and water polo ($p < .001$).

Discussion

For the third consecutive Summer Olympics, and for the fourth time out of the past five Olympics Games, Summer or Winter, women received the bulk of the camera time during the prime-time

Table 3 Clock Time for Male Athletes by Sport Between the Prime-Time and Non-Prime-Time Broadcasts

Event	Time for male	% of sport on NBC prime time	% of sport on other broadcasts	χ^2	p
Basketball	11:04:44	4.44	8.85	38.55	<.001
Beach volleyball	4:46:09	0.19	4.53	98.60	<.001
Canoe/kayak	1:13:30	0.04	1.17	25.70	<.001
Cycling	1:49:30	0.02	1.75	41.32	<.001
Diving	3:59:33	4.67	1.91	59.29	<.001
Golf	1:04:05	0.39	0.87	4.79	.029
Gymnastics	4:12:54	4.03	2.39	21.47	<.001
Rowing	0:36:27	0.01	0.58	13.42	<.001
Skateboarding	2:06:58	1.44	1.44		
Sport climbing	0:40:34	0.02	0.65	14.63	<.001
Swimming	11:54:41	13.12	6.03	133.34	<.001
Track and field	10:14:32	11.85	4.95	144.90	<.001
Volleyball	5:34:45	0.09	5.35	124.95	<.001
Water polo	2:26:20	0.06	2.33	53.13	<.001

Table 4 Clock Time for Female Athletes by Sport Between the Prime-Time and Non-Prime-Time Broadcasts

Event	Time for Female	% of sport on NBC prime time	% of sport on other broadcasts	χ^2	p
Basketball	6:05:33	4.25	4.11		
Beach volleyball	10:21:27	10.03	5.82	37.82	<.001
Canoe/kayak	1:28:01	0.03	1.40	35.98	<.001
Cycling	3:28:33	0.07	3.33	85.97	<.001
Diving	4:21:25	1.61	3.54	26.04	<.001
Golf	0:40:42	0.24	0.56	4.58	.032
Gymnastics	10:21:46	14.63	3.90	273.97	<.001
Rowing	1:15:55	0.02	1.21	31.75	<.001
Skateboarding	1:23:24	0.10	1.30	29.33	<.001
Sport climbing	0:38:54	0.02	0.62	15.59	<.001
Swimming	12:04:23	11.62	6.81	42.23	<.001
Track and field	10:29:54	12.42	4.96	126.85	<.001
Volleyball	9:54:54	0.78	9.26	206.11	<.001
Water polo	4:27:32	0.62	4.05	75.43	<.001

NBC broadcast. Additionally, by reaching nearly 58% of the coverage, women also received the most time on camera during an Olympic Games ever seen. To reach such a lofty percentage is indeed meaningful, as it is the largest gap since the 2010 Vancouver Games where men received 62.2% of the coverage (Angelini, MacArthur, & Billings, 2012). Perhaps even more monumental, however, is that the percentage dedicated to women at the 2020 Games is the largest in the recorded history of clock time for the Summer Olympic Games; even men had not received such a large percentage before (FiveRingTV, 2021).

Of course, the theoretical ramifications here as it pertains to agenda setting are more evident now than ever before. It is clear that NBC has dedicated themselves to promoting and portraying women during the Olympics as the increased focus on women beginning with the 2012 London Games is stark. While the IOC did not put out their Gender Equality Review Project until 2018, it seems that some of their recommendations have indeed been

considered by NBC in their broadcast strategies. The importance of featuring women athletes more prominently cannot be understated. For one, the Olympics offer the only area of any semblance of sex equity in the sports world in terms of broadcast coverage. A longitudinal analysis has revealed that both local and major sports networks essentially silence women's sports, with coverage percentages hovering around 3% (Cooky et al., 2015). However, as other studies have revealed, there are positive effects for viewers, particularly women, when there is more coverage of women's sports (Angelini, 2008; Xu & Billings, 2020). It seems, therefore, that the Olympic agenda in the United States consists, to a heightened degree, of allotting a substantive amount of coverage to women.

Interestingly, when looking at the overall numbers of competing athletes, while 49% of 2020 Olympians were women, the United States roster featured 329 women, accounting for just over 53% of the team (Planos, 2021). Thus, it can certainly be speculated

that one of the major reasons for the increase in women's coverage was that there were more women competing. However, when considering the number of total Olympians that were women along with the number of U.S. women, to reach nearly 58% of the prime-time coverage indicates that there was a particular emphasis. Additionally, while there were more U.S. women than men competing in 2020, 2016, and 2012 (U.S. Olympic & Paralympic Committee, 2021), there were more U.S. men competing in the 2018 Winter Games; thus, there is not a direct correlation between there being more U.S. women competing and women receiving the majority of prime-time coverage. Another number worth noting is that U.S. women out-earned the U.S. men in terms of medals. The United States won 113 medals at the 2020 Games, 66 of those were won by women, which equates to 58.4%, and women also won 59% of U.S. gold medals (Planos, 2021). Indeed, these percentages of U.S. medals won by women aligns closely with the nearly 58% of prime-time coverage for women. Such a "follow the medals" pattern is not uncommon and there has been a great deal of overlap between medals and coverage in multiple Olympic Games since 2000 (Billings & Angelini, 2019). For the 2020 Tokyo Olympics in particular, the amount of content shown live in prime time was lower than it would be without such a substantive time difference, thus suggesting that NBC had even more ability to push the agenda they wanted to set; quite often, that agenda revolves around U.S. success.

The other major finding here is that, as it pertains to the non-prime-time NBC broadcasts, women were yet again receiving the majority of coverage. While not as much as the prime-time broadcast, women's 55.2% of the non-prime-time NBC broadcast is still a substantial amount. Previously, the only other measure of Olympic broadcasts outside of NBC prime time occurred during the 2018 Winter Games (Arth et al., 2019). There it was uncovered that, while women received 52.2% of the prime-time coverage, they were allotted just 41.1% of the additional broadcasts. Thus, while NBC may have promoted women in prime time, their agenda away from that broadcast told a different story. Here, however, women were the story whether it was prime time or not. A key difference, however, is that while the 2018 Olympic study analyzed every hour of coverage across all television networks featuring Olympic content, the study at hand considered solely NBC's main channel, primarily due to the sheer amount of coverage on other channels. For nearly each day of the fortnight, NBC Sports Network, USA Network, and CNBC were featuring Olympic content nearly 24 hr per day. While this analysis decision may be a limitation, NBC is indeed the channel with the largest audience and thus, if a network was to be chosen for the purposes of setting an agenda, it would undoubtedly be NBC. It is clear that, regardless of the time of day, the agenda for NBC during the 2020 Games was women.

In terms of sports shown, it was yet again clear that certain sports dominate the prime-time airwaves. As has come to be expected, the top three sports were swimming, track and field, and gymnastics. Those three sports alone encompassed 67.7% of the prime-time broadcast. After factoring in beach volleyball and basketball, that percentage rises to 86.5%, reminiscent of past research (Angelini & Billings, 2010). Given that this pattern has now been uncovered in multiple Olympic broadcasts, it may be argued that, perhaps, it is the audience that is clamoring for these three highly covered sports. However, the tenets of agenda setting would suggest that it is instead NBC that pushed this agenda initially, thus causing these sports to be the most desired by the audience. This was also the first year that each of the Summer

Olympic sports received at least a portion, no matter how small, of prime-time airtime. The non-prime-time story, however, was somewhat different if not necessarily more varied. Despite there being over 60 more coded hours for the non-prime-time broadcasts, gymnastics still received more total coverage on prime time, and track and field received roughly the same amount of coverage between the two broadcast types.

The additional non-prime-time hours, therefore, were not necessarily made up by the same top five prime-time sports. While swimming received the most coverage on prime time, and the second most coverage in nonprime time, the sport receiving the most coverage during non-prime-time broadcasts was volleyball. Volleyball, receiving just over 22 min during NBC prime time, was allotted more than 15 hr of coverage during the non-prime-time broadcasts and the most of any sport. Such a stark contrast between the two broadcast types for a particular sport is similar to what was found in the 2018 Winter Games; ice hockey and curling dominated the non-NBC prime-time programming, but were essentially shutout during the flagship Olympic broadcast (Arth et al., 2019). A sport like volleyball, even with the U.S. women winning their first gold medal, is likely too time-consuming of a sport to warrant full coverage during the all-important prime-time hours. To a lesser extent, the same can be said for basketball; while it did receive the fifth-most prime-time hours, 8.6% in total, it was the third-most broadcast sport in nonprime time, totaling nearly 13 and one quarter hours and 12.5% of non-prime-time hours. The lengthy runtime of a basketball game certainly has much to do with the hours of coverage it received, but the combination of it being one of the most popular sports in the United States, as well as the outright dominance of both men's and women's Olympic basketball suggests that NBC is willing to carve out a not so insignificant amount of prime-time hours even for a sport that requires a lot of time.

The difference between sports displayed during the prime-time and non-prime-time hours is but one part of the conversation. The other primary Olympic coverage storyline is not just about women receiving more hours of coverage during these Games, but the sports in which they receive that coverage. During prime time, gymnastics and beach volleyball saw the most prominent skew toward women. Women received over 78% of the total gymnastics coverage on prime time, and they received 98% of the prime-time beach volleyball coverage. In both of these cases, the argument can be made that these differences are due to the success of U.S. women compared to U.S. men in these sports. For gymnastics, the U.S. women medaled in each event, compared to the zero medals for U.S. men. In addition, Simone Biles was perhaps the most well-known U.S. Olympian competing at the 2020 Games, and her withdrawal during the team competition was a landmark moment for mental health in sports (Walker et al., 2021). The medal story, however, was similar for beach volleyball as U.S. women won gold, while the men were out of competition by the round of 16.

However, while the differences in success and the star power of the competitors accounts for some of the broadcast time differences, it cannot be ignored that these two sports also feature, arguably perhaps, the most revealing and sexualized uniforms worn by the women competing. Women's beach volleyball uniforms, in particular, have long been discussed due to their revealing nature, particularly when compared to the uniforms worn by men which are typically looser, longer, and more substantive overall (Sailors et al., 2012). While past research uncovered a high percentage of tight camera shots during women's beach volleyball games (Bissell & Duke, 2007), the charge before the 2020 Games

was to focus on “sport appeal, not sex appeal” and thus limit the close-up shots of, particularly, the women competing (Associated Press, 2021). However, just weeks after the Olympics concluded, the same type of problematic tight camera shots were utilized during a sport climbing competition (Pavitt, 2021) suggesting that, across the sports world, women’s bodies are still sexualized, even if not as much as before. In addition, the heavy portrayal of women’s beach volleyball and gymnastics, along with the prime-time silencing of the men’s versions of the same sports, indicates that there is still at least a degree of bias present toward displaying women when they are wearing the least. Similarly, the sports where women received the most prime-time coverage were still those that fall into the *feminine* or *socially acceptable for women* categories as has been outlined in past research (Coche & Tuggle, 2016). Thus, the success and prominent storylines surrounding U.S. women may not be the sole reason for the coverage disparities.

This sex-based prime-time agenda becomes clearer when looking into the non-prime-time sports. Most glaringly, while men’s beach volleyball received just 5 min of coverage during prime time (2% of all prime time beach volleyball), the competition received nearly 4 hr and 45 min on non-prime-time broadcasts, just under 45% of non-prime-time beach volleyball. Thus, it seems that there is an imperative to highlight women’s beach volleyball on prime time, but push the men to the additional programming. The basketball competition provides an interesting aspect of agenda setting, as well. While men and women received the same amount of clock time in prime time, the non-prime-time broadcasts saw men receive over twice as many coverage hours. Here, it seems like the focus for NBC was to be equitable in prime time, but perhaps in their remaining coverage it was believed that the men’s competition was more desirable, likely due to the sheer popularity of men’s professional basketball in the United States. The final dichotomy of note pertains to diving, which, at the 2020 Games, was a competition that did not see any true U.S. standouts. However, diving has long been a popular Olympic sport in terms of camera time (see Billings et al., 2014b). Thus, with there being no true U.S. standout, to see that men received the bulk of the prime-time diving coverage, while women received the bulk of the non-prime-time diving camera time seems is meaningful in that it patterns the men/women coverage divide of the past; with no nationalistic storyline present, the emphasis appears to have defaulted to men.

Future research should continue to assess not only the flagship NBC broadcast, but the many non-prime-time options, as well. In particular, while this study was limited to NBC only, future Summer Olympic research should endeavor to capture the many other broadcast options both in terms of other networks and also the streaming service options. Additionally, there can also be an emphasis placed on improving the granularity of the data. Specifically, in addition to breaking up the clock-time data into men and women and prime time and nonprime time, future research might also want to illuminate more on the specific contests shown. For instance, whether the competitions are medal rounds or not, or whether they feature U.S. athletes or not. This type of analysis can provide a bit more context to the already large swath of clock-time data and it would help answer some of the speculation that occurs when looking at the data as it stands now. Additionally, given the context of these Games occurring 1 year later than anticipated due to COVID-19, future research may want to assess the 2020 Olympics and how the broadcast itself was impacted by the pandemic. With the study at hand focusing specifically on camera time for men and women, some of the residue of COVID-19, such

as empty arenas and masked spectators and athletes, were not the central aspect of study. Even so, while the pandemic did not appear to impact clock time in any meaningful way, there may be other broadcast elements that were affected.

But, perhaps more than anything, future research should simply continue to analyze the Olympic broadcasts; a lot of change in clock-time patterns have occurred since the early days of Olympic research and it is certainly possible that at least a portion of that change can be due to this program of research. On a related note, it would be a worthwhile endeavor to assess Olympic broadcasts from other countries around the world, as well. With the IOC (2018) putting out their report on gender equity just a few years ago, this would be a particularly impactful time to understand how other countries’ broadcasts align with the desires of the IOC.

Conclusion

As has been the case over much the past decade, the 2020 Tokyo Olympics saw women at the forefront of the NBC agenda as they received more clock time than men. While the emphasis on women may not be new to the Olympics anymore, what is new is the margin by which women were favored as it was the largest to date. It is also clear that, having followed up on the 2018 Winter Olympic clock-time analysis (Arth et al., 2019), there is merit to the assessing the differences between the prime-time and non-prime-time Olympic broadcasts in terms of the overarching agendas of NBC. While the 2018 Games study found that women were pushed on prime time, men were still the story across the remaining coverage; that was not the case here as NBC promoted and portrayed women more than men across their channel during all time slots. The analysis of a larger portion of the Summer Olympic broadcasts also allowed for some new patterns to be uncovered. Namely, while women’s beach volleyball is must-see prime-time television, as has been known, we now know that men’s beach volleyball is not ignored, but just ignored in prime time as it receives considerable attention elsewhere; unpacking the reasons why may be an analysis unto itself.

As Billings and Angelini (2019) speculated after the 2018 Games, the question becomes whether this new data from the most recent Olympiad allows us to say that equity has been achieved. Indeed, the pendulum continues to swing further and further toward the side of women, but to simply say that women’s sports are now seen as being equally or more important than men’s would be an oversimplification. There is still the matter of the “follow the medals” mantra to further unpack, and surely the “follow the Americans” credo will not be dissipating anytime soon; in both of those cases, women are currently ahead of men, and as long as that is the case it seems likely that they will also be ahead on Olympic broadcast minutes. Even so, NBC is capable of setting their desired agenda and, unlike the rest of the sports world, the Olympic agenda continues to be women.

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