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# ***COVID-19: Return to Youth Sports***

## ***Perceptions of COVID-19-Related Adaptations in Youth Travel Sports***

***May 3, 2021***

### **Executive Summary**

COVID-19 has impacted nearly every aspect of life, and youth sport is no exception. States and counties have published and are regularly modifying their guidelines for permitting youth sports to return. Governing bodies, sports facilities, and event operators have created modifications and adaptations for participants and spectators to ensure a safe environment. However, there is light at the end of the tunnel - according to [CDC data](#), as of the end of April 2021, over a quarter of Americans have received the COVID-19 vaccine. With the number of daily administered doses of the vaccine [exceeding 3 million](#) and steadily increasing by the day, our eventual “return to normal” will come sooner rather than later.

This study, conducted by the Sports Innovation Institute at Indiana University-Purdue University Indianapolis (IUPUI) and Grand Park Sports Campus, sought to evaluate the current perceptions and attitudes of parents, athletes, coaches, officials, and administrators towards COVID-related adaptations. We collected 2,917 survey responses from parents, coaches, and athletes who participate in youth travel sports, predominantly from seven Midwestern states (Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, and Wisconsin). Clustered respondents fell into four groups based on their perceptions of removing COVID-related adaptations and attitude toward COVID-19. The results provide youth sports facilities and event operators with actionable data regarding when, how much, and for whom specific COVID-19 adaptations and procedures can be scaled back as our country steadily approaches normalcy.

### **Key Findings**

1. Forty percent of respondents supported the removal of at least eight of the nine COVID-related adaptations. Removal of face coverings for participants had the most support (75%), followed by bench and dugout modifications (73%), limiting spectators (71%), amenities (71%), arrival and departure times (60%), personal contact between athletes (58%), face coverings for spectators (57%), and social distancing for spectators (55%). The exception was that only 36% of respondents agreed that facilities should scale back on sanitization to pre-COVID levels. Opinions were split, however, as 50% of respondents wanted to see at least

seven of the nine adaptations removed, while 35% wanted to see at least four of the adaptations remain in place.

2. Respondents believe that indoor youth sports tournaments should have tighter attendance restrictions than outdoor tournaments. Overall, 45% of respondents believe there should be no attendance restrictions during indoor tournaments whereas 76% of respondents believe there should be no attendance restrictions during outdoor tournaments.
3. Families that travel for youth sports have seen little change to their travel habits as a result of the pandemic. Seventy-five percent of respondents reported the pandemic did not affect their travel plans or habits for youth sports tournaments.
4. Respondents are comfortable lodging in a hotel for a tournament that requires an overnight stay. For each month from March to August, over 90% of all respondents are comfortable traveling overnight for youth sports tournaments.
5. Current economic conditions have had almost no impact on respondents' sports travel budget. Only 31% of all respondents reported allocating less money in their budget toward youth sports travel, and 61.5% of individuals reported COVID-19 had no impact.
6. Respondents reported wanting slightly more strict procedures for those participating in youth sports (coaches, players, and officials) than spectators. Overall, 51% of respondents believe there should be entry requirements for participants and 44% believe there should be entry requirements for spectators.
7. There are four groups of attendees that venues can expect in 2021. The *Normalcy Overdue* group wants to eliminate all the COVID-related adaptations utilized by youth sports venues and strongly believes that we should have “returned to normal” before now. The *Ready to Return* group is quite similar to the *Normalcy Overdue* group with two key exceptions: (1) a lower adaptation removal score (7.4 out of 9) and (2) 96% believe that society should return to normal *now*. The *Middle of the Road* group wanted to eliminate half of the COVID-adaptations (4.5 out of 9). The *COVID Cautious* group wants to keep all the COVID-related adaptations utilized by youth sports venues and strongly believes that we should return to normal when herd immunity is reached.

[Link to interactive Tableau dashboard visualizing results](#)

## Background

Over the past 13 months, COVID-19 has completely altered and impacted nearly every area of our lives, and youth sports is no exception. As the COVID-19 pandemic emerged, facility managers and tournament directors were left to determine how to manage their business given the uncertainty during the early days. County, state, and federal mandates requiring shutdowns of facilities influenced decisions to close facilities. During the full facility shutdown, facility managers and tournament directors attempted to address the needs of the business and facility. Due to the lack of revenue, some facilities temporarily laid off or reduced hours for employees, working with a smaller staff to address needs such as facility maintenance, purchasing COVID-19 cleaning and health supplies, and COVID-19 protocol development. Additionally, they attempted to maximize new opportunities specific to the pandemic, either by applying for Paycheck Protection Program (PPP) loans or extending hours to meet childcare needs in the local community.

As health officials allowed facilities to reopen at reduced capacity, owners and leaders were left to determine how to operate under the new guidelines. Facility and tournament directors sought guidance from local health departments to determine if they were categorized as a business that could reopen to the public. Governing bodies, sports facilities, and event operators then created modifications and adaptations for participants and spectators to ensure a safe environment.

Return to play at the facilities and tournaments was welcome by athletes and families, even though the return looked different in many cases. To abide by mandated gathering restrictions, players either attended by themselves or with one family member, a restriction the facilities noted as difficult to manage. New protocols were developed, including changes to arrival and departure routines, limiting spectators, health screening, social distancing, face coverings, increased sanitization, closure of amenities, altered bench and dugouts areas, and limitations on personal contact (Pierce et al., 2020).

While the COVID-19 pandemic has created uncertainty, tournament and facility directors eagerly await the ability to provide a space for youth to return to play. Youth and recreational sports facilities and events are revisiting COVID-19 guidelines and procedures as the virus reaches new phases. The new phases include states lifting their masks mandates and a larger percentage of the population receiving a vaccine. As of April 16, [13 states](#) have lifted their masks mandate and just over a quarter of [Americans](#) have received the COVID-19 vaccine.

The purpose of this study is to assess the opinions of key stakeholders in youth sports on their attitude toward COVID-related adaptations for the upcoming travel seasons of 2021. The results can be used by tournament and facility directors to understand the attitudes of the users that will attend events.

## Methodology

### Questionnaire

A 31-item questionnaire was developed. Questions regarding COVID-related adaptations were adopted from [Pierce et al. \(2020\)](#). A pilot test was conducted with youth sports venue administrators to determine the face validity of the questions. The final survey was distributed to 40 organizations that were prompted to distribute the survey to their members and stakeholders via email and social media, as shown in Table 3. Approval for the study was obtained through the Institutional Review Board at Indiana University. Data was collected in the last two weeks of March 2021.

### Survey Respondents

A national audience of 2,917 people from 27 states completed the survey. Eighty-five percent of respondents resided from Indiana or one of the four states that border it (Ohio 31%, Indiana 17%, Illinois 17%, Michigan 12%, and Kentucky 8%). Nearly 98% of all respondents were parents, and 58% of respondents were female. The average age of respondents was 46 years old with 61% of respondents between 40 and 49 years old, 25% between 50 and 59 years old, and 9% between 30 and 39 years old. The majority of respondents had an association with baseball (52%), followed by soccer (50%), basketball (39%), football (25%), softball (15%), volleyball (14%), and lacrosse (12%).

## Cluster Analysis

Cluster analysis is a statistical procedure to group respondents by similarity. Five survey questions were selected to group respondents into distinct COVID-19 personas.

1. How important is it for youth sports facilities and tournament operators to enforce its COVID-19 guidelines and procedures? [Not at all important (1) to Extremely Important (5)]
2. COVID-19 guidelines and procedures take away from the enjoyment of my experience at youth sports facilities and tournaments. [Strongly Disagree (1) to Strongly Agree (5)]
3. COVID-19 is a major threat to public health. [Strongly Disagree (1) to Strongly Agree (5)]
4. A score from 1 to 9 was calculated based on the number of COVID-adaptations the respondent favored eliminating (1-9).
5. When do you believe it is time to “return to normal” without COVID-19 restrictions? [We should have already returned to normal; Now; When mask mandates are lifted; When herd immunity is reached through vaccination]

Ordinarily, the standard k-means algorithm could be used with our variables, but due to our mixed data that included categorical and continuous responses, [an algorithm was needed that could properly handle both quantitative and categorical data](#). Clustering algorithms measure the distance between feature vectors to separate groups of individuals, and calculating a distance between categorical variables is often tricky. Gower Distance allows the calculation of partial dissimilarities across various data types.

$$d(i, j) = \frac{1}{p} \sum_{i=1}^p d_{ij}^f$$

For quantitative features, the Gower Distance is measured as the absolute distance between two features and divided by the maximum range for all observations.

$$d_{ij}^f = \frac{|x_{if} - x_{jf}|}{R_f}$$

For qualitative features, the partial dissimilarity is equal to 1 if the observations have the same categorical response, and 0 otherwise. Gower Distance then averages the quantitative and qualitative partial dissimilarities between two observations as the distance.

The selection for  $k$ , the number of clusters, is important in the methodological process because  $k$  represents how many different COVID-personas attained. The silhouette coefficient, an estimation of the consistency within clusters, was used to validate the choice of  $k$ . The coefficient [“contrasts the average distance to elements in the same cluster with the average distance to elements in other clusters”](#). As a result, the  $k$  with the highest silhouette width is the best choice. The silhouette width presented an optimal value of  $k=2$ , but because a wider range of COVID-personas was more interpretable, the  $k$  with the second highest silhouette width,  $k=4$ , was chosen.

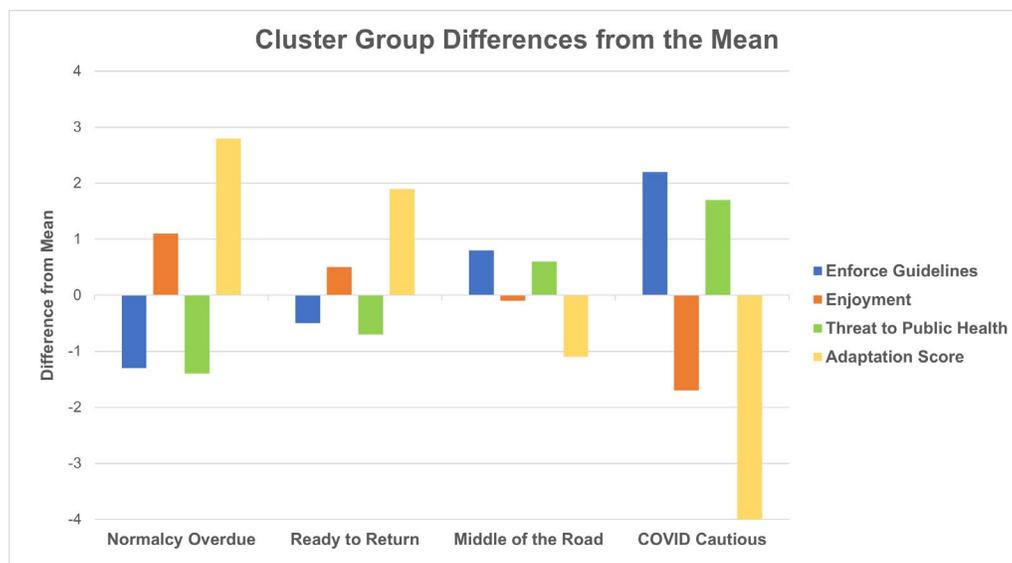
The clustering algorithm that performs well using Gower distance is [Partitioning Around Medoids \(PAM\)](#). While the k-means algorithm generally does not have actual data points as the medoid (center) of the clusters, PAM does have an actual data point as the centers. The PAM algorithm chooses  $k$  of the number of observations as the medoids. These medoids minimize the error of the algorithm and groups data points to which each medoid is the closest. Each non-medoid data point is compared to a medoid in terms of how it minimizes error, and if the non-medoid data point minimizes the error better than the existing medoid, the data point is swapped as the new cluster medoid. This iterative process continues until each data point is separated and grouped with its medoid that minimizes error.

## Results

### COVID-19 Personas

Youth sports venue operators need to be prepared for four types of users at their venue in the summer travel season in 2021. The following persona descriptions are designed to give venue and tournament operators a window into the attitudes and beliefs of people coming to events this season. The four groups were distinct and interpretable. Figure 1 demonstrates how the groups differed from each other. Table 1 presents the scores for each group on each of the five questions used in the cluster analysis.

**Figure 1. Cluster Group Differences from the Mean**



**Table 1. Cluster Analysis Results**

	<b>Enforce Guidelines</b>	<b>Enjoyment</b>	<b>Threat to public health</b>	<b>Adaptations Removed</b>	<b>Return to Normal</b>
<b>Normalcy Overdue</b>	1.3	4.8	1.6	8.4	99% before now
<b>Ready to Return</b>	2.1	4.2	2.3	7.5	96% now
<b>Middle of the Road</b>	3.4	3.6	3.6	4.5	41% mask mandate
<b>COVID Cautious</b>	4.8	2.0	4.7	1.6	94% herd immunity
<b>Mean</b>	2.6	3.7	3.0	5.6	

### **Normalcy Overdue - 29% of respondents**

The largest group was *Normalcy Overdue*, accounting for 29% of all respondents. The *Normalcy Overdue* group wants to eliminate all the COVID-related adaptations utilized by youth sports venues and strongly believes that we should have “returned to normal” before now. When attending youth sports events, this group is not concerned if the venue enforces its COVID-19 guidelines and sees those guidelines as negatively impacting their enjoyment. They also strongly disagree that COVID-19 is a threat to public health.

*Normalcy Overdue* scored the highest (8.4 out of 9) on agreeing that the nine adaptations should be eliminated. Over 90% of *Normalcy Overdue* agreed with eliminating eight of the nine adaptations, with scaling back sanitization only receiving 70% support. Over 99% of this group believes society should have returned to normal before now. They were the strongest of the four groups in disagreeing that COVID-19 is a threat to public health and in disagreeing that it is important for venues to enforce guidelines. Finally, they were the most adamant that COVID-19 adaptations took away from their enjoyment at events.

Ninety percent of respondents in *Normalcy Overdue* wanted to eliminate attendance restrictions for indoor venues and 99% wanted to eliminate restrictions for outdoor venues. Regarding attendance restrictions, this group had a 90% response that there should be no restrictions at all on attendance at youth sporting events. Over 80% wanted to see the elimination of screening procedures for participants and spectators to gain entry.

Finally, *Normalcy Overdue* was distinctive as it was significantly more likely than other groups to not get the vaccine (52%), and only 20% have already received or will get the vaccine, compared to 48% in *Ready to Return*, 74% of *Middle of the Road*, and 94% of *COVID Cautious* who have received or will get the vaccine.

### **Ready to Return - 20% of respondents**

The *Ready to Return* group, accounting for 20% of respondents, is quite similar to the *Normalcy Overdue* group with two key exceptions. First, their adaptation removal score (7.4 out of 9) was less than *Normalcy Overdue* (8.5 out of 9). *Ready to Return* was significantly less likely to want to scale back sanitization efforts (46%) than *Normalcy Overdue* (70%). Second, 96% believe that society should return to normal *now* (96%), compared to the *Normalcy Overdue* group that believed it should have occurred *before now* (99%). The *Ready to Return* group wants to return to youth sports now with the caveat that sanitization is still occurring despite eliminating other COVID-19 related adaptations. They are no longer looking for facilities to enforce the guidelines and

procedures that were put in place in response to the pandemic because they feel most adaptations should be eliminated.

The *Ready to Return* group is ready to eliminate health screening procedures for spectators (62%) and participants (52%). They are most supportive of retaining self-assessment questions upon entry if any procedures are to be implemented. They are nearly identical to *Normalcy Overdue* in wanting to eliminate attendance restrictions for outdoor venues (96%), but they were less likely than *Normalcy Overdue* to want to eliminate all restrictions (60%), yet significantly higher than *Middle of the Road* (20%) and *COVID Cautious* (4%). They are the most supportive of restricting attendance to extended family if restrictions are to be implemented.

*Ready to Return* is similar to *Normalcy Overdue* in not believing it is important for venues to enforce COVID-19 procedures and that COVID is not a threat to public health. The *Ready to Return* group feels COVID-19 related guidelines and procedures take away from their enjoyment of their experience at youth sports facilities and tournaments. This group is looking to watch youth sports without the use of COVID-19 guidelines or procedures in place, essentially how the tournaments operated pre-COVID-19.

### ***Middle of the Road - 28% of respondents***

The *Middle of the Road* group, accounting for 28% of respondents, agrees that COVID-19 has taken away from their enjoyment at youth sporting events (3.6 out of 5), however, has mixed feelings regarding when it is time to “return to normal”. While over 94% of every other group collectively agreed it was time to return at a specific time, this group was more split in their opinions, ranging from when mask mandates are lifted (41%), when herd immunity is reached (29%), now (18%), and before now (12%). While the name of this group is a metaphorical description, certain data points show that the overall viewpoints of these respondents fall right down the middle. For example, this group agrees it is time to eliminate exactly half of the nine described COVID-related adaptations (4.5 out of 9).

*Middle of the Road* is *unlike Normalcy Overdue* and *Ready to Return* in that they believe that COVID-19 is a legitimate threat to public health (3.6 out of 5) and that it is important to for facilities and tournament operators to enforce COVID-19 guidelines and procedures (3.4 out of 5). *Middle of the Road* sees a significant difference between indoor and outdoor venues when considering attendance limitations. Only 20% of *Middle of the Road* indicated indoor sporting events should have no attendance restrictions compared to 74% for outdoor. The 54% difference between the two is the largest such difference within the four groups. Despite their moniker, *Middle of the Road* is likely to get the COVID-19 vaccine, regardless of the reason. Only 3% of respondents indicated that they will not get the vaccine or are against vaccines in general. This

percentage is drastically lower than *Normalcy Overdue* (52%) and closely in line with *COVID Cautious* (1%).

### **COVID Cautious - 23% of respondents**

The *COVID Cautious* group, accounting for 23% of all respondents, believes the opposite of the *Normalcy Overdue* group. The *COVID Cautious* group wants to keep all the COVID-related adaptations utilized by youth sports venues and strongly believes that we should return to normal when herd immunity is reached. When attending youth sports events, this group believes it is very important for venue operators to enforce its COVID-19 guidelines and does not feel those guidelines negatively impact their experience. They also strongly believe that COVID-19 is a threat to public health.

*COVID Cautious* scored the lowest (1.6 out of 9) on agreeing that the 9 adaptations should be eliminated. There was scant support in this group for removing any of the COVID-related adaptations, ranging from 27% supporting removal of face coverings for participants to 6% in favor of removing social distancing and face coverings for spectators. Over 94% of this group believed society should return to normal when herd immunity is reached through vaccination. *COVID Cautious* also showed the highest level of support for the vaccine, with 94% having received or saying they will receive the vaccine. *COVID Cautious* was the strongest in agreeing that COVID-19 is a threat to public health (4.7 out of 5), and it is important for venues to enforce COVID-19 guidelines (4.8 out of 5). They scored the lowest (2.0 out of 5) on COVID-related adaptations negatively impacting their experience.

*COVID Cautious* supports health screening procedures for participants and spectators. For participants, 72% want to see temperatures taken and 67% supported answering questions on a health screening form. For spectators, the most popular option was temperature screens (61%). This is in stark contrast to *Normalcy Overdue* and *Ready to Return* that showed little support for such procedures. Regarding attendance restrictions, *COVID Cautious* was the most likely to support restrictions to immediate family members for indoor (63%) and outdoor (37%) venues. In conclusion, the *COVID Cautious* group is not ready for normalcy. This group still wants to keep all precautions that youth venues have put in place last March 2020.

## Removal of COVID-Related Adaptations

Respondents were asked whether they agreed or disagreed that a COVID-related adaptation should be removed. Respondents were polarized on whether to eliminate adaptations. Fifty percent of respondents wanted to see at least seven of the nine adaptations removed, while 35% wanted to see at least four of the adaptations remain in place. Table 2 presents the distribution of the percentage of respondents and how many adaptations those respondents want to eliminate.

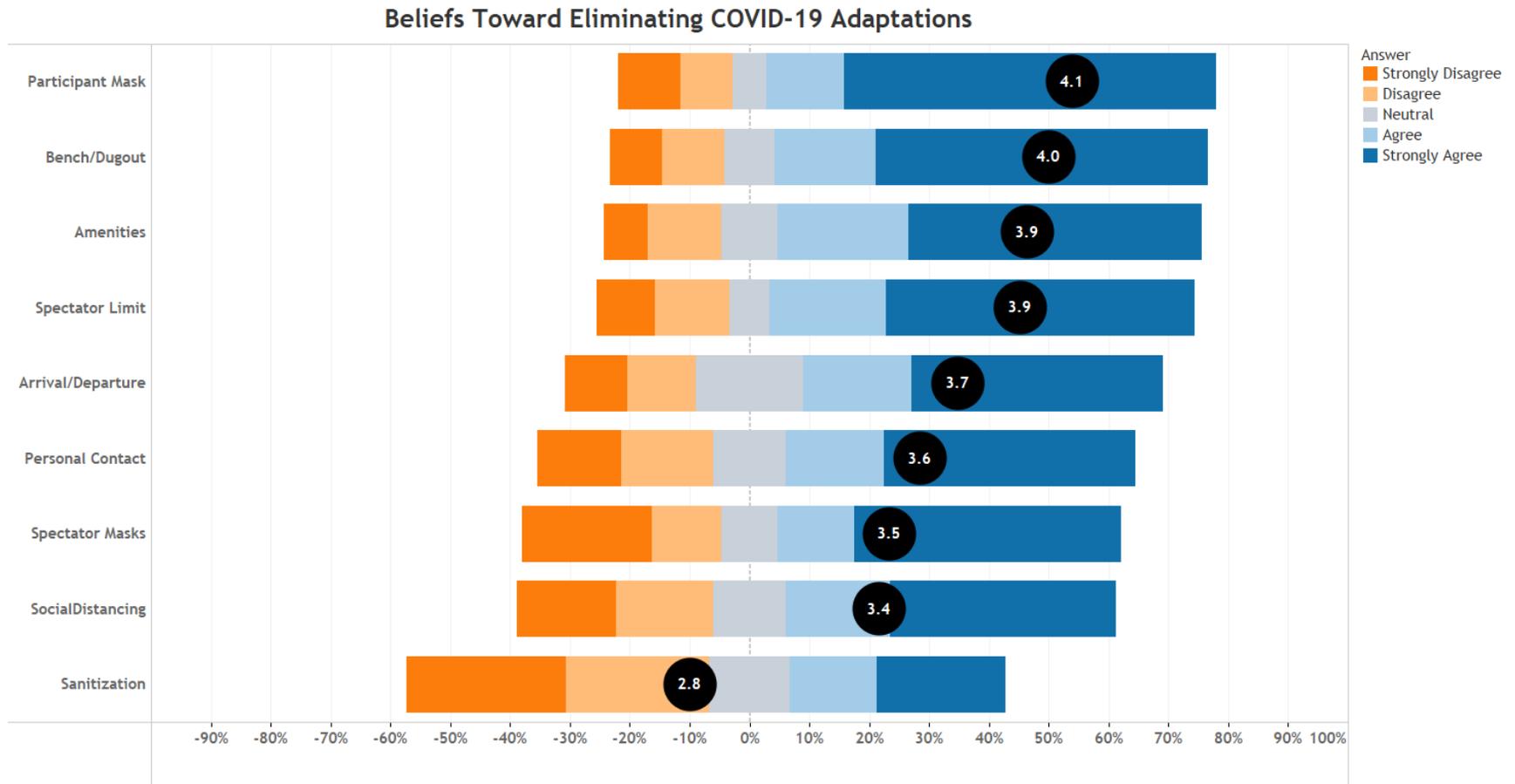
**Table 2. Percentage of Respondents Supporting Removal of Adaptations**

Adaptations Removed	Pct.
All 9	24.9%
8	15.6%
7	9.4%
6	7.8%
5	7.1%
4	6.4%
3	5.5%
2	5.8%
1	7.6%
0	10.0%

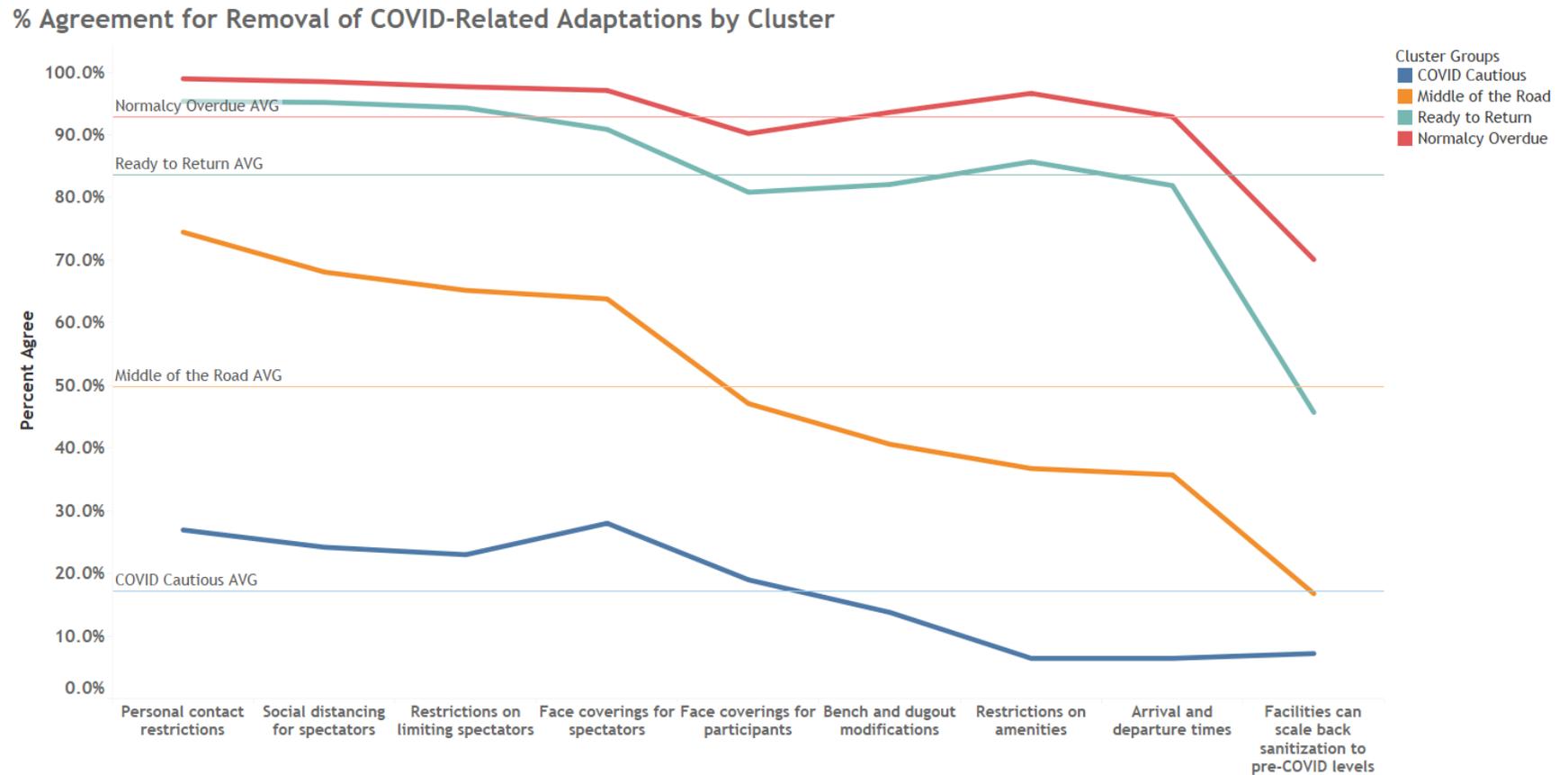
Removal of face coverings requirements for participants had the most support (75%), followed by removal of bench and dugout modifications (73%), limitations on spectators (71%), closure of amenities (71%), modified arrival and departure times (60%), limitations on personal contact between athletes (58%), requiring face coverings for spectators (57%), and requiring social distancing for spectators (55%). The exception was that only 36% of respondents agreed that facilities should scale back on sanitization to pre-COVID levels. Figure 2 displays how respondents answered each question about eliminating adaptations.

In comparing the four groups, *Normalcy Overdue* and *Ready to Return* were more likely to eliminate each adaptation than *Middle of the Road* and *COVID Cautious*. Over 90% of the *Normalcy Overdue* group and over 80% of the *Ready to Return* group believed each adaptation should be eliminated except for sanitization practices. In contrast, less than 30% of *COVID Cautious* supported the removal of each adaptation, and three adaptations received less than 10% support. *Middle of the Road* received the greatest variability, ranging from 75% supporting the removal of face coverings for participants to only 36% supporting removal of face coverings and social distancing for spectators and 17% wanting to scale back sanitization efforts. Figure 3 shows how groups differed on each adaptation.

**Figure 2. Beliefs Toward Eliminating COVID-19 Adaptations**



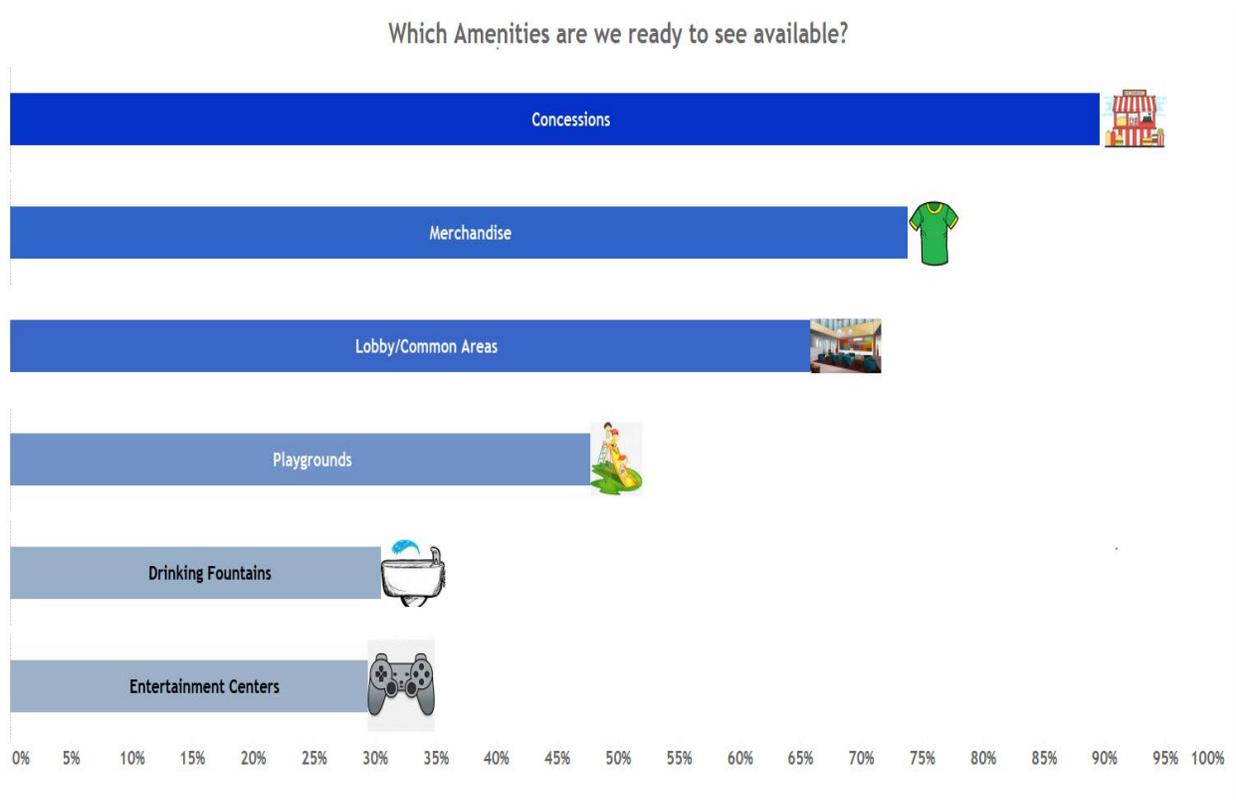
**Figure 3. Percentage Agreement for Removal of COVID-Related Adaptations by Cluster**



## Amenities

COVID-19 caused many facilities to eliminate amenities in response to health and safety guidelines. Respondents are ready for most of these amenities to be open except for drinking fountains and entertainment centers. Support ranged from 94% believing concessions should be available to only 32% believing entertainment centers should be open. *Normalcy Overdue* and *Ready to Return* are significantly more likely to believe all amenities should be available, but *Middle of the Road* and *COVID Cautious* are significantly less likely to want each amenity opened. Figure 4 shows the level of support for the re-opening of amenities at youth sports venues.

**Figure 4. Support for Return of Amenities at Youth Sports Venues**



## Entry Requirements

Opinions vary on the extent to which venues and tournament operators should ask spectators and participants to complete health screenings to gain entry to youth sports events. Respondents were asked to select which procedures should be required for participants and spectators to gain entry. Respondents reported wanting stricter procedures for participants (coaches, players and officials) than spectators. Overall, 51% of respondents believe there should be entry requirements for participants, and 44% believe there should be entry requirements for spectators. The most selected screening procedure was the self-assessment (30%) for participants and having temperatures taken for spectators (33%). COVID-19 tests and proof of a negative COVID-19 test were the least selected screenings. *COVID Cautious* was the most likely to want to see each of the screening procedures and the least likely to select “No screening procedure” for both participants and spectators. Figure 5 shows how respondents differed on screening procedures for spectators and participants.

**Figure 5. Opinion toward Health Screening Procedures for Spectators and Participants**

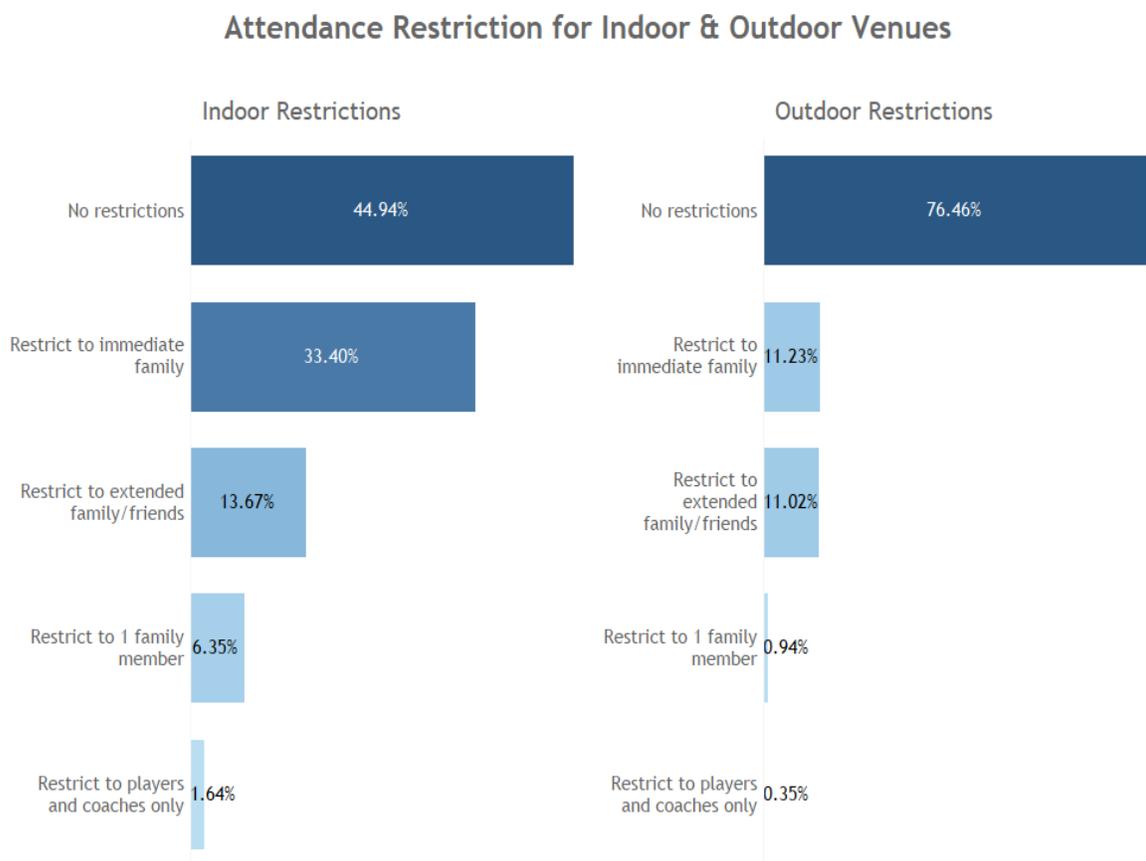
### Health Screening Procedures for Spectators/Participants



## Attendance Restrictions

During the global health crisis, youth sports venues have placed restrictions on who can attend games and tournaments. Respondents believe that indoor youth sports tournaments should have more restrictions than outdoor venues. Overall, 45% of respondents believe there should be no restrictions for indoor events whereas 76% believe there should be no restrictions for outdoor events. For indoor youth sporting events, *Normalcy Overdue* preferred no restrictions (90%), compared to *Ready to Return* (60%), *Middle of the Road* (20%), and *COVID Cautious* (4%). *COVID Cautious* preferred restricting to immediate family for indoor (63%) and outdoor (36%) while *Middle of the Road* preferred restricting to immediate family for indoor (51%). *Middle of the Road* had the largest difference of opinion between indoor and outdoor, changing their opinion of having no restrictions from 20% for indoor to 74% for outdoor. Figure 6 shows how respondents differed on attendance restrictions for indoor and outdoor venues.

**Figure 6.** *Opinion toward Attendance Restrictions for Indoor and Outdoor Venues*



## Perceptions of Youth Sports Venues

Attitudes toward enforcement and communication of COVID-related adaptations were polarized and varied across the four groups. As it relates to enforcement of guidelines, 37% believed it was important for venues to enforce guidelines, 44% reported it was not important, and 19% were neutral. Similarly, 49% reported it was important for venues to communicate their COVID-19 protocols on site, 35% reported it was not important, and 16% were neutral. Group affiliation explains the difference in viewpoints. Each group was significantly different from all other groups for both questions ( $F = 2950, p < .001$  for Enforcement;  $F = 1283, p < .001$  for Communication). Table 3 presents how groups differed on the importance of communication and enforcement of COVID guidelines.

**Table 3.** *Importance of Enforcement and Communication of COVID Guidelines*

	Enforcement		Communication	
	Mean	SD	Mean	SD
<b>Normalcy Overdue</b>	1.31	.65	1.78	1.14
<b>Ready to Return</b>	2.13	2.13	2.63	1.28
<b>Middle of the Road</b>	3.42	3.42	3.80	.98
<b>COVID Cautious</b>	4.83	4.83	4.83	.42
<b>Total</b>	2.86	2.86	3.21	1.54

Groups reported that COVID-related protocols impacted their overall enjoyment at youth sports events differently. There was more agreement amongst all respondents that COVID-related guidelines negatively impacted their experience. Sixty-five percent agreed that COVID-related guidelines take away from their experience. Each group was significantly different from all other groups ( $F = 1133.912, p < .001$ ). Table 4 presents how groups differed on the extent to which COVID guidelines take away from their enjoyment of youth sports.

**Table 4.** *COVID-19 Guidelines Takeaway from Enjoyment of Experience*

	N	Mean	SD
<b>Normalcy Overdue</b>	857	4.76	.60
<b>Ready to Return</b>	580	4.22	.86
<b>Middle of the Road</b>	825	3.62	.90
<b>COVID Cautious</b>	654	2.03	1.14
<b>Total</b>	2916	3.72	1.34

## COVID-19 Impact on Travel and Budget

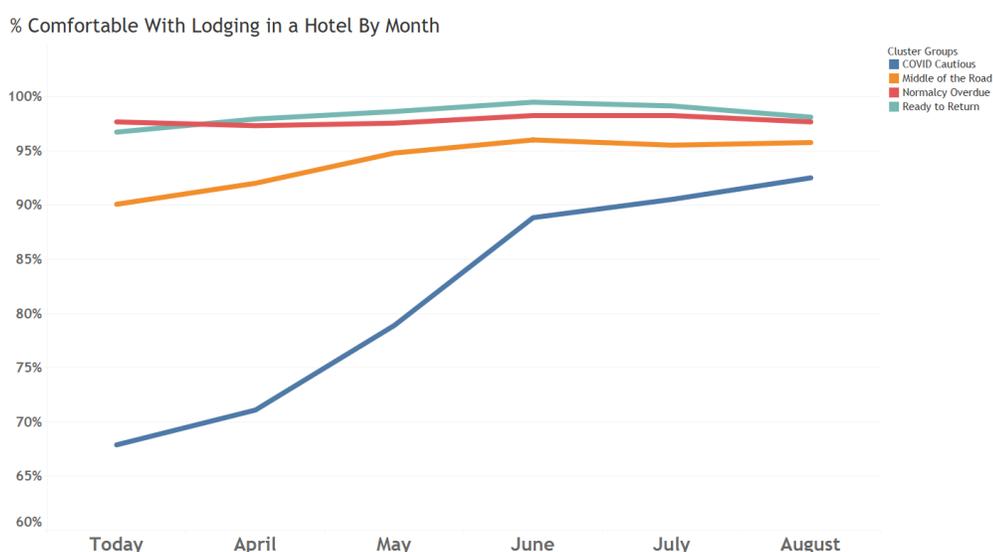
Families that travel for youth sports have not seen much change to their travel habits as a result of the pandemic. Seventy-five percent of respondents reported the pandemic did not affect their travel plans or habits for youth sports tournaments. While there was widespread agreement on this question, differences did emerge between the four clusters ( $\chi^2 = 1050, p < .001$ ). *COVID Cautious* was more likely to be less willing to travel (63%) and was the least likely to see no change to their travel habits (37%) compared to the other three groups. Table 5 presents how groups differed in their travel habits due to COVID.

**Table 5. Changes to Travel Habits**

	Normalcy Overdue	Ready to Return	Middle of the Road	COVID Cautious	Total
<b>No change to travel habits</b>	90.4%	92.1%	79.3%	36.5%	75.5%
<b>Less willing to travel</b>	1.2%	4.1%	17.6%	62.7%	20.2%
<b>Traveled more than before</b>	8.5%	3.8%	3.1%	0.8%	4.3%
<b>Total</b>	29.4%	19.9%	28.3%	22.4%	100%

Projecting forward into the summer months in 2021, respondents are comfortable lodging in a hotel for a tournament that requires an overnight stay. For each month from March to August, over 90% of all respondents are comfortable traveling overnight for youth sports tournaments. The only group showing hesitancy toward travel is the *COVID Cautious*, moving from 71% in March to 96% in August. Figure 7 presents level of comfort in traveling by month.

**Figure 7. Percentage Comfortable Lodging in a Hotel by Month**



Economic conditions had almost no impact on respondents' sports travel budget. Only 31% of all respondents reported allocating less money in their budget toward youth sports travel, and 61.5% of individuals reported COVID-19 had no impact. There were differences between groups ( $\chi^2 = 62, p < .001$ ). *COVID Cautious* was less likely than the other three groups to see no change in their budget, and instead were more likely to see budget reductions for youth sports travel. Table 6 compares changes in budgets for each group.

**Table 6. Impact of COVID-19 on Sports Travel Budget**

	<b>Normalcy Overdue</b>	<b>Ready to Return</b>	<b>Middle of the Road</b>	<b>COVID Cautious</b>	<b>Total</b>
<b>Budget has increased</b>	9.7%	6.4%	7.8%	5.8%	7.6%
<b>Decreased by &lt; 25%</b>	14.4%	17.6%	19.4%	18.1%	17.3%
<b>Decreased by 25-49%</b>	8.0%	8.3%	10.3%	11.9%	9.6%
<b>Decreased by 50-74%</b>	2.1%	1.2%	2.7%	4.6%	2.6%
<b>Decreased by &gt;75%</b>	1.4%	0.5%	0.6%	2.9%	1.3%
<b>No impact at all</b>	64.4%	66.0%	59.3%	56.7%	61.5%
<b>Total</b>	29.3%	19.9%	28.3%	22.4%	100%

Chi Square = 62.325,  $p < .001$

Despite current economic and public health conditions, respondents claimed that keeping their child participating in sports is important to them. Ninety percent of respondents reported it was very important or extremely important to keep their child participating in sports regardless of financial situation. *Normalcy Overdue* and *Ready to Return* believed it was more important to keep their child participating in youth sports regardless of financial condition than the *Middle of the Road* and *COVID-Cautious* groups ( $F = 56.6, p < .001$ ). Table 7 presents how groups differ on the level of importance placed on youth sports.

**Table 7. Importance in Keeping Child Participating in Youth Sports Regardless of Financial Situation**

	<b>Normalcy Overdue</b>	<b>Ready to Return</b>	<b>Middle of the Road</b>	<b>COVID Cautious</b>	<b>Total</b>
<b>Not at all important</b>	0.4%	0.3%	0.1%	1.2%	0.5%
<b>Slightly important</b>	1.2%	0.9%	1.3%	2.8%	1.5%
<b>Moderately important</b>	4.8%	6.4%	7.4%	15.1%	8.2%
<b>Very important</b>	16.8%	23.3%	31.9%	35.5%	26.6%
<b>Extremely important</b>	76.9%	69.1%	59.3%	45.4%	63.3%
<b>Total</b>	36.1%	21.8%	20.0%	22.1%	100%

## Author Bios

### [Demi Johnson](#)

Demi Johnson, 23, from Peoria, Illinois is in her final semester at Indiana University Purdue University, Indianapolis where she is pursuing a Master's Degree in Applied Data Science with a specialization in Sports Analytics. Demi has landed experience in statistics and data analytics around the Midwest, including the NCAA, IU School of Informatics and Computing, Komatsu Mining Corporation, and the Peoria Chiefs Minor League Baseball Club. She hopes to continue growing her technical skills and break into a career in Basketball Analytics. She is an avid college basketball and Los Angeles Lakers fan, in addition to supporting the Dallas Cowboys, and Chicago Cubs.

### [Jack Gray](#)

Jack Gray is a 24-year-old from Chattanooga, TN currently pursuing his Applied Data Science Master's Degree at Indiana University Purdue University, Indianapolis. With professional experience as a Business Analyst/Data Scientist in logistics and healthcare, he hopes to integrate himself within the sports industry, using his mathematics and statistics background to assist in Team Operations. He is a passionate fan of The University of Tennessee, the Atlanta Braves, Tottenham Hotspur, and the Tennessee Titans.

### [Jack Habegger](#)

Jack Habegger, 22, from Fishers, Indiana is currently pursuing his Applied Data Science Master's Degree with a specialization in Sports Analytics at Indiana University-Purdue University, Indianapolis. Jack has multiple years' experience working as a part-time Data Analyst with Pro Football Focus and has a variety of experience volunteering with organizations within the city of Indianapolis such as the Indianapolis Colts and the Indiana Sports Corp. He hopes to continue to refine his technical skills and launch into a full-time career in Football Analytics. He is an avid fan of the University of North Carolina, Indianapolis Colts, and Indiana Pacers.

### [Erika McKibben](#)

Erika McKibben, from Mooresville, IN, is a graduate student at IUPUI pursuing her masters in Sport Event Tourism and serves as a graduate assistant for Downtown Indy, Inc. Her undergraduate degree is also from IUPUI in Tourism, Convention, and Event Management with a minor in Sports Marketing. She has previous experience in event management, community relations, and client services within professional sports teams and sports facilities.

### [Rachel Lohman](#)

Rachel Lohman, from Springfield, IL, is a graduate student in the Department of Tourism, Event, and Sport Management and a graduate assistant for the School of Health & Human Sciences at IUPUI. She has previous experience in event operations, game operations, and fan engagement within professional sports teams and sports commissions. She has been involved with several studies involving data collection and content analysis for both college athletics and professional teams.

### [Alexis Hendricks](#)

Alexis Hendricks is a native of Indiana who has her B.A. in Journalism with a concentration in Public Relations. She also has her certifications in Event Management and Personal Training. Alexis is a current graduate assistant with the School of Health and Human Sciences working in the Marketing and Communications department.

### [David Pierce](#)

David Pierce is an Associate Professor of Sport Management in the Department of Tourism, Event, and Sport Management and serves as the Director of the Sports Innovation Institute at IUPUI. He is the professor for the graduate-level applied research course in the Sport Event Tourism degree in which this project was completed.

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