

COVID-19 Impact on Basic Psychological Needs and Commitment to Sport

by

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Abstract

COVID-19 has interrupted sport in unprecedented ways. While there is a media focus on how the interruption impacts activities for young children, there are repercussions for adult activities as well. A recognized concern in North America is the low rates of adult sport participation. Research from the Harvard T. H. Chan School of Public Health (2015) found only 1 in 4 surveyed adults are committed to playing sports. Unfortunately, COVID-19 may further exacerbate these low levels of sport commitment. To examine whether the pandemic has impacted adult sport commitment, we draw on self-determination theory (SDT) to examine motivation in sports. We collected data from adult participants ($N = 117$) who completed a self-report questionnaire assessing important SDT components (autonomy, competence, relatedness) and commitment to sport. We used an Ordinary Least Squares regression to assess whether higher scores on these components of SDT are associated with increased commitment to sport, and found support for the overall model ($R^2 = .35$, $F(4, 100) = 15.11$, $p < .001$). We found competence ($\beta = .30$, $p = .005$), relatedness ($\beta = .30$, $p = .003$), and level of sport ($\beta = .26$, $p = .004$) were associated with commitment to sport. Autonomy, however, did not yield significance ($\beta = -.18$, $p = .256$). These results contribute to a broader discussion of how adults can maintain commitment to sport during a global pandemic, by considering the influence of key SDT components. Implications and recommendations for adult sport participation will also be considered.

Keywords: COVID-19, sport commitment, basic psychological needs.

COVID-19 Impact on Commitment to Sport and Basic Psychological Needs

In March 2020, the World Health Organization (WHO) officially acknowledged the global pandemic of COVID-19, which greatly altered the sporting world. Sporting events and competitions were put on hold and people were restricted in terms of leaving their homes to engage in any type of social gathering or physical activities. People's sporting routines were completely derailed, and the vast majority of people in sport around the world were confined to their homes and were prevented from playing sports leading most people to live a sedentary lifestyle from day to day in order to follow COVID-19 health protocol. According to the WHO, adults aged 18-64 should limit the amount of time spent being sedentary, and note that focusing more time on any kind of physical activity instead of sedentary behaviour can lead to health benefits (World Health Organization, 2020). The WHO has also listed that 1 in 4 adults do not meet global recommended levels of physical activity. Further, adult participation in sport has been found to decline in comparison to sport participation in childhood. For instance, a public poll found that while 3 out of 4 adults surveyed played sports as kids, only 1 in 4 continued playing into adulthood (Harvard T. H. Chan School of Public Health, 2015). Given the negative impact of COVID-19 on sport and the already low levels of adult sport participation, it is important to investigate how the pandemic is affecting adult commitment to sport. In this study, I use self-determination theory (SDT) as the guiding theory to conduct this research.

Self-determination Theory

SDT is defined as people's internal development and inborn psychological needs that serve as foundational development toward self-motivation, integration and growth of the self (Ryan & Deci, 2000). This type of motivation is known as self-motivation because it is focused on the self and is important for optimal functioning across various achievement domains

including school, employment, and sports. More specifically, autonomous motivation refers to a complete sense of choice and agency when engaging in an activity (i.e. sports) or a behaviour (Ryan & Deci, 2017). In SDT, these psychological needs are innate and necessary, not just temporary motivations for people (Deci & Ryan, 2000). Further, Deci and Ryan (2000) discuss how SDT needs play a critical role in the understanding of human motivation. These needs are essential for an individual's growth and well-being in a psychological context. Research on SDT has focused primarily on three basic psychological needs in relation to self-motivation: (a) *autonomy*, which refers to a person feeling in control of their own behaviours; (b) *competence*, which refers to a person's sense of accomplishment or effectiveness within their environment; and (c) *relatedness*, which refers to a person's connection with the people around them and in their community (Ryan & Deci, 2002).

Autonomy, competence and relatedness all matter because, when they are met or experienced by a person, they lead to greater self-motivation and mental health (Ryan & Deci, 2000). Whereas when they are not met, a person can experience less self-motivation and decreased well-being. According to Deci and Ryan (2000), social environments and individual differences that help with satisfying these basic needs of SDT lead to internal growth processes for different kinds of self-motivation. Conversely, social environments and individual differences that prevent the needs of autonomy, competence and relatedness from developing are associated with less motivation and decreased well-being. All three needs are key factors in the study of motivation within SDT research and have been central to a number of previous research studies concerned with sport commitment and motivation.

Commitment to Sport

Commitment to sport has been defined in the past as a personal wanting and resolve to persist in a sporting context over the course of time (Scanlan et al., 2003). It has later been defined as “the psychological state to persist in a sport over time” (Scanlan et al., 2016). Commitment to sport thus promotes the continuation of playing sports for a longer period of time (i.e., sustained activity), which as noted earlier, relates to better health (WHO, 2020). For example, physical activity is associated with health benefits such as preventing and managing cardiovascular diseases, cancer, and diabetes (WHO, 2020). So, commitment to sport is important because it can lead to various health benefits for individuals, by having people remain in sporting activities, and be able to reap the potential benefits of physical activity through sport. Enthusiastic commitment is defined as a personal wanting to persist and continue in something (Scanlan et al., 2016).

Literature overview for SDT and Commitment in Sport

In this section, I will provide an overview of several studies that have examined SDT’s basic psychological needs (autonomy, competence, relatedness) in association with sport commitment and motivation. This overview will provide some insight on the importance of having SDT need satisfaction met for individuals in sport as well as the connection these needs have toward sport commitment and motivation in the sporting context.

Findings from O’Neil and Hodge (2019) reveal the importance of both commitment and motivation in understanding the mentality for athletes who intend to continue playing sports. The researchers found results linking enthusiastic commitment with an athletes’ intention to keep playing their sport, as well as a moderate-strong bivariate correlation with autonomous motivation and enthusiastic commitment. The study findings include how support for SDT needs (autonomy, competence, relatedness) may help to enhance commitment to sport. This research

also had implications for SDT motivation helping to foster commitment which would then lead to intention to continue in sport for these athletes who were young adult soccer players.

Research on youth soccer players found that players who perceived their coach to promote the basic psychological needs of autonomy, competence, and relatedness displayed greater levels of satisfaction for these variables within the sporting environment (Pulido et al. 2018). Pulido and colleagues also found that autonomy satisfaction was associated with more engagement with activities and active participation. As for feelings of competence, it was associated with more pleasure during practice due to perceptions of success, and feelings of relatedness were associated with enjoyment of sports practice due to stronger identification with their sporting team. This study highlights the importance of SDT needs for psychological well-being and satisfaction for individuals in sport as well as the relationship between SDT psychological needs and commitment to sport.

Podlog et al. (2015) found that self-determined motivation was key in facilitating the relationship between engagement of high performing adolescent athletes, specifically downhill skiers, and their basic need satisfaction of competence, autonomy, and relatedness. This study highlights the relationship between SDT needs and athlete engagement with their sport. Engagement is defined as active involvement in a self-fulfilling pursuit or occupation that helps to enhance a person's sense of effectiveness (Maslach & Leiter, 2008). Importantly, SDT variables have been noted as potential key precursors of athlete engagement (Hodge et al., 2009) so engagement can be preceded by SDT. With adults in organized sport, engagement remains a major area of concern with the number of participants in sports significantly decreasing in age, at least in North America (Harvard T. H. Chan School of Public Health, 2015). Since research on high performance adolescent athletes suggests that need satisfaction and engagement are related,

further research could examine this in an adult sporting population. As well, a focus on whether or not these effects found in previous research are exacerbated due to the COVID-19 pandemic is warranted.

Karamitrou et al. (2017) took an SDT approach when examining the relationship between basic need satisfaction and motivation as factors for athletes' automatic self-talk. This research suggests that environments supporting athletes' basic psychological needs lead to increased motivation for sport and leads to more positive self-talk with athletes, while minimizing negative self-talk. These findings suggest that individuals in organized sport benefit from their SDT need satisfaction being met in some capacity in order to hold positive feelings and attitudes in their sporting endeavors, and increase their motivation for sport specifically. This study highlights the importance of a sporting environment in relation to SDT need satisfaction, as well as to motivation. Given that athletes are currently amidst a global pandemic, it is important to examine the relationship between SDT needs and motivation during COVID-19. For example, since the pandemic has left many individuals isolated from their sports and stuck at home, a supportive sporting environment may be lacking during this time and would have consequences for need satisfaction and motivation toward sport.

Sport Motivation during COVID-19

The stoppage of play in sport can have significant negative impacts on athletes (Toresdahl et al., 2020). The mental health consequences include grief, stress, anxiety, frustration and sadness. Considering the impact that the pandemic can have on the mental health of individuals who are engaged in organized sport, it is important to look at whether or not these effects have extended to their commitment to sport. As Toresdahl et al. (2020) discusses, a lack of social support and a lack of regular training regimen means that the primary supports for

managing depression and anxiety for some athletes are absent and it may be more difficult for these individuals to manage their mental health without these supports. Therefore, examining whether SDT's basic psychological needs have an impact on commitment to sport can provide some insight on whether SDT need satisfaction has any association with desire to continue on in sport after the pandemic despite the negative impact the pandemic has on the mental health of people competing in sport.

There has been previous survey data that found commitment to sport for adults was already a big issue in North America prior to the COVID-19 pandemic. The survey responses from a Harvard public health poll revealed that out of the adults who responded, sports participation drops drastically from childhood to adulthood (Harvard T. H. Chan School of Public Health, 2015). This decrease is concerning because these same adults in the study, most of whom were not currently engaging in a sporting activity themselves, believed that sports were associated with improved physical and mental health in children and adults alike. Even though they understood the health benefits associated with sport, there was still a lack of actual participation in sport from this group of adults. In light of this Harvard research poll, the interruption to adult sport participation triggered by COVID-19 may further reduce the already low levels of adult sport participation and contribute to a further lack of the physical and mental health benefits gained from sport participation. Examining adults' commitment to organized sport is a timely contribution to the literature since they may not be able to participate or be supported by their sport environment during this time of social distancing.

A study in Spain by Leyton-Román et al. (2021) found that competence as a basic psychological need was a factor in increasing levels of self-determined motivation and commitment to physical activity practice within the population of adults (18-65 years old) during

the COVID-19 lockdown. As well, participants reflected high levels of autonomous motivation (not as a basic psychological need) towards their practice in the study. The research finding concerning the basic psychological need of competence and its association with increased commitment to sports practice is important because it provides support for an SDT basic psychological need contributing to commitment to sport during the lockdown period. It is important to examine the associations between SDT basic psychological needs and commitment to sport within a different context, as well as the needs of autonomy and relatedness with commitment to sport, not just competence.

Schinke et al. (2020) discusses how both amateur and professional high-performance athletes place a lot of emphasis on their athletic identity. The significance of professional athletes' athletic identity can even become disproportionate to everything else, and lead to a single-minded identity, solely focused on sport. Given the emphasis on athletic identity from professional athletes, it is reasonable to assume that many high-performance athletes are strongly committed to sport at the professional level. Consequently, I want to examine the relationship that level of sport has when dealing with a more mixed population, including amateur sport. Specifically, those who compete competitively but not necessarily at a professional level, and those who compete recreationally for fun. How strong would the association between level of sport and commitment to sport be when accounting for non-professional athletes?

Objectives

My study has two objectives: to test (a) whether a person's level of sport (recreational, competitive or both) is associated with increased commitment to their organized sport; and (b) whether psychological needs of SDT (autonomy, competence, and relatedness) are associated with higher levels of commitment to organized sport. Considering the previous literature on SDT

and commitment to sport, I hypothesize that a higher level of sport (playing competitively) and higher scores on all of the components of SDT will be associated with increased commitment to sport for adults.

Method

To answer my research questions, I used a multiple correlation design that looked at the association between one criterion variable (commitment to sport) and multiple predictor variables (SDT needs and level of sport).

Participants

The study sample consisted of adults who were playing in an organized sport prior to the public health measures associated with the COVID-19 pandemic shutting down organized sporting participation ($N = 117$). Data was collected from more than 117 participants; however, three participants did not meet the age requirement of being 18 or older so these cases were omitted from data analyses. In addition, one participant did not give explicit consent so their data was also removed from analyses. The participants varied in terms of the type of sport and level of sport. There was some variability in terms of what sports the participants played. The most common responses included: soccer (23 responses), volleyball (13 responses), dance (13 responses) and hockey (11 responses). All participants reported engaging in some specific form of organized sport, not simply a form of leisure or general physical activity.

Procedure

The procedure for this research was approved by the University of Alberta Research Ethics Board 2 (Appendix X). A snowball sampling recruitment method was used in this study. Participants were recruited through online advertisements (i.e., Twitter), through listservs such as the student digest for the University of Alberta, as well as through sharing the survey link with

personal contacts. Participants read a detailed consent form at the start of the electronic survey containing information about their rights to skip questions they were not comfortable answering and that if they wanted to leave the survey, they simply needed to close the link before submitting the survey. They were also informed that due to the anonymous nature of the study, there would be no way to remove responses from the study once the survey was submitted. The consent form was followed by a ‘Yes’ or ‘No’ question that asked participants for their informed consent. Participants responded to a SurveyMonkey questionnaire. They first answered a series of questions about their demographic information (age, gender, type of sport, level of sport) and then to questions about self-determination in sporting contexts.

Measures

Demographic variables. The demographic variables included in this study were age (18 or older) and gender (1 = *Man*, 2 = *Woman*, 3 = *Non-binary*, 4 = *Prefer not to report*). Participants also indicated the “Type of sport” they played (1 = *Individual*, 2 = *Team*, 3 = *Both*) and “Level of organized sport” (1 = *Recreational*, 2 = *Competitive*, 3 = *Both*). Level of sport and Type of sport were background variables for this study.

Predictor variables. The predictor variables included the three SDT needs: autonomy, competence, and relatedness. The self-report questionnaire was based on Ng et al.’s (2010) Basic Needs Satisfaction in Sports Scale (BNSSS) which measures athletes’ psychological need satisfaction in the three SDT needs of autonomy, competence and relatedness, as well as internal perceived locus of causality (IPLOC) and volition, which are subcategories of the SDT need of autonomy. In the present study, the three SDT needs of autonomy, competence and relatedness were included in the analyses. The items from the BNSSS for the 3 SDT needs employed a 7-point Likert scale, with the lowest value of 1 = *not true at all*, and the highest value of 7 = *very*

true. The questions were placed in a randomized order so participants could not answer questions about the same SDT needs one after the other. Four items were adapted to measure autonomy e.g., “In my organized sport, I get opportunities to make choices”; five items were adapted to measure competence e.g., “I get opportunities to feel that I am good at my organized sport”; and five items were adapted to measure relatedness, “I have close relationships with people in my organized sport.”.

Criterion variable. The criterion variable for the study was commitment to sport. I took seven items from Foster’s (2017) Athletic Identity Measurement Scale (AIMS). These questions also employed a 7-point Likert scale, with the lowest value of 1 = *strongly disagree* and the highest value of 7 = *strongly agree*. A sample item is: “I spend more time thinking about my organized sport than anything else”. All study items are available in Appendix X.

Rationale for Analyses

I conducted the analyses in three steps. First, I produced descriptive statistics (e.g., means, standard deviations) and examined the characteristics of the data. As part of this, I cleaned the data by filtering the age variable so people who did not meet the age requirement were not included. I also dichotomized the level of organized sport variable into two levels: 1 = Recreational and 2 = Competitive or Both (recreational and competitive). Dichotomizing level of sport helps with interpretation of the variable. You are either competing in sport recreationally or at least competing competitively in one sport, which is much simpler to interpret than three separate categories. Also, the “*Both*” selection for level of sport comprised athletes competing competitively which makes them more likely to be committed, similarly to the just “*Competitive*” option and different from the purely “*Recreational*” option. The second step was to run a zero-order correlations test involving gender, level of sport, the predictor variables for

SDT, and the criterion variable of commitment to sport in order to see how different variables were associated. The third step was to run Ordinary Least Squares (OLS) regressions to assess the hypothesis (using SPSS software). I then tested whether higher scores on the three SDT needs (autonomy, competence, relatedness) were associated with increased commitment to sport.

Results

Preliminary Analyses

Most participants self-identified as female, with 60.7% female and no participants answered “prefer not to report” ($M = 1.66$, $SD = .53$ range = 1-3). Gender was not significantly correlated with any other variable. For the dichotomized level of sport, more participants played sports competitively/both with 68.4% compared to 31.6% for recreational ($M = 1.68$ $SD = .47$ range = 1-2). Cronbach’s alpha levels were all above .80 indicating a good level of reliability: for autonomy ($\alpha = .89$), competence ($\alpha = .85$), relatedness ($\alpha = .82$), and commitment ($\alpha = .84$). See Table 1 for a summary of all variables.

Table 1
Summary of the Variables

Measures	No. of items	Anchors	α	M	SD	Actual range	Skewness	Kurtosis
<u>Covariate</u>								
1. Level of Sport	1	1 = <i>recreation</i> 2 = <i>competitive or both</i>	–	1.68	.47	1-2	-1.383	.444
<u>Independent Variables</u>								
2. Autonomy	4	1 = <i>not true at all</i> 7 = <i>very true</i>	.89	21.90	5.20	7-28	.817	.459
3. Competence	5	1 = <i>not true at all</i> 7 = <i>very true</i>	.85	29.90	4.50	7-35	-.033	.461
4. Relatedness	5	1 = <i>not true at all</i> 7 = <i>very true</i>	.82	29.98	4.85	7-35	.526	.461
<u>Dependent Variable</u>								
	7		.84	34.80	8.48	7-49	-.771	.455

Measures	No. of items	Anchors	α	M	SD	Actual range	Skewness	Kurtosis
5. Commitment		1 = <i>strongly disagree</i> 7 = <i>strongly agree</i>						

Note. All measures assessed at a single time point.

In terms of correlations (see Table 2), the dichotomized level of sport variable was significantly correlated with competence ($r = .30, p < .01$) and commitment to sport (.41). Autonomy was significantly correlated with competence (.37) and relatedness (.45) but contrary to the study hypothesis, not commitment to sport (.08). Competence was significantly correlated with level of sport (.30), autonomy, relatedness (.56) and commitment to sport (.49). Relatedness was significantly correlated with autonomy, competence and commitment to sport (.45). Commitment to sport was significantly correlated with dichotomized level of sport, autonomy, competence, and relatedness.

Table 2. Zero-Order Correlation Matrix for Adults in Organized Sport.

	1	2	3	4	5	6
1. Gender	–	-.13	.00	-.11	-.04	-.04
2. Level of Sport		–	-.12	.30**	.13	.41**
3. Autonomy			–	.37**	.45**	.08
4. Competence				–	.56**	.49**
5. Relatedness					–	.45**
6. Commitment						–

Note. Gender was dummy-coded where 1 = *Man* and 2 = *Woman*. Level of Sport was dummy-coded where 1 = *Recreational* and 2 = *Competitive or Both (recreational and competitive)*. * $p \leq .05$, ** $p \leq .01$ (two-tailed tests).

Main Analyses

OLS regressions were used to test whether higher levels of the SDT needs of autonomy, competence and relatedness as well as the dichotomized level of sport (Recreational, Competitive + Both) were associated with increased commitment to sport (Table 3). Generally, my findings revealed mostly expected relationships. Playing at a more competitive level of sport was positively associated with commitment to sport ($\beta = .26, p = .004, CIs = 1.53 \text{ to } 7.72$). Higher levels of competence ($\beta = .30, p = .005, CIs = 0.17 \text{ to } 0.92$) and relatedness ($\beta = .30, p = .003, CIs = 0.18 \text{ to } 0.87$) were also positively associated with commitment to sport. These results were all consistent with the hypothesis. The one variable that was inconsistent with the hypothesis was autonomy. My results revealed autonomy was not associated with commitment to sport ($\beta = -.11, p = .257, CIs = -0.48 \text{ to } -0.13$). The model summary supported the hypothesis for the overall model ($R^2 = .35, F(4, 100) = 15.11, p < .001$).

Table 3. *Regression Analyses: The relationship of SDT components with commitment to sport*

Independent Variable	Dependent Variable			
	Commitment to Sport			
	<i>B (unstand. B)</i>	<i>t</i>	<i>p</i>	<i>95% CI for β</i>
Level of Sport	.26** (4.63)	2.96	.004	1.53-7.72
Autonomy	-.18 (-.106)	-1.14	.257	-.48-.13
Competence	.30** (0.55)	2.90	.005	.17-.92
Relatedness	.30** (0.52)	3.01	.003	.18-.87
<i>R</i> ²	.35			

Note. Standardized regression coefficients (β) are provided. Unstandardized regression coefficients (*b*) are reported in brackets. * $p < .05$; ** $p < .01$

Discussion

The purpose of this research study was to determine the extent to which three important psychological needs for motivation in SDT, autonomy, competence, and relatedness, were

associated with adult commitment to sport during the public health restrictions associated with the COVID-19 pandemic. Findings from this research contribute to a broader understanding of how adults can work towards maintaining commitment to sport, especially in the pandemic world. Research that focuses on commitment to sport from an SDT perspective involving an adult population is limited. Thus, this study addresses an important omission in the literature because it focuses on a population that has not received a lot of attention in this area. I will discuss the significant results of the study, as well as the non-significant result of autonomy and the implications these results have for motivation and commitment concerning adults in sport. Then I will describe the limitations of the research and directions for future work.

Level of Sport

Level of sport was found to be positively correlated with the perceived need for competence. Meaning the higher the level an adult was competing at, the more competent they felt in their respective sport. In order to compete at a high level, confidence as well as a certain level of talent or ability is required. Consistent with the study hypothesis, individuals who were playing sport competitively indicated higher competence in their respective sport. Previous research has found a positive significant effect between experience level and personal investment, where participants with 15 or more years of dance experience had higher personal investment than less experienced dancers (Wang & Chu, 2016). Wang and Chu (2016) also found that frequency of participation also had a positive significant effect on sport commitment, where participants who danced for 10 or more hours per week had higher levels of sport commitment in comparison to participants who danced for less time per week. People who are competing in sport at a higher level may have more commitment due to their investment level in the sport. Whether it is the time or resources they have invested, it would be reasonable to expect

that people who have put more into their sport would be committed to getting the most out of it. Also, the finding that level of sport is positively associated with commitment to sport is consistent with research discussed previously in this paper. Schinke et al. (2020) found that high-performance athletes place a lot of importance on their athletic identity. In the current study, playing sport at a competitive level was associated with increased commitment. This finding is in line with what Schinke et al. (2020) discussed. Since high-performance athletes attribute more importance to their athletic identity and because it is part of who they are and what they value, it makes sense that athletes who compete at a higher level of sport where higher performance is required, would have increased commitment to their sport.

Basic Psychological Needs

Competence and relatedness were also positively related to commitment to sport. The competence association with commitment is consistent with recent research found similar results for this SDT basic psychological need and its association with commitment (Leyton-Román et al., 2021). These results for competence and relatedness also make intuitive sense. If you feel competent while away from your sport, you may look forward to getting back to it and staying in shape for when sport does eventually return to normal. Concerning relatedness, the connections with others in a sporting environment helps adults to stay committed to their sporting endeavors. Whether it be virtual workouts with teammates or an exercise group to stay in shape, having similar others to support and motivate is a potentially key aspect of maintaining commitment to sport, especially with the pandemic restricting actual play. The nature of actual activities of course is beyond the scope of the current research but may be an important direction for future research especially if restrictions continue.

Inconsistent with the study hypothesis, autonomy was not positively related to commitment to sport. It is possible COVID-19 is playing a role with this null result for autonomy which was not a factor in previous research. For example, one of the items to measure autonomy was “In my organized sport, I get opportunities to make choices”, which might be considered differently in light of COVID-19. This is because people involved in sport are unable to make choices because they cannot compete. Whether it be their sport stopping completely, or restrictions placed on the sport, meeting a need for autonomy for adults in sport is limited by the current circumstances. One possible explanation can be gathered from recent research in a work context.

Research by Anicich et al. (2020) examined the psychological recovery for employees at the start of the COVID-19 global pandemic found that autonomy restoration was immediate rather than a delayed process, suggesting that autonomy can be restored fairly quickly, even as the pandemic got worse. The difference between the employees and the adults participating in organized sport for the current study, is that employees are able to work from home due to technology and not requiring close contact to conduct their work. But sport requires close contact with others in order to physically compete. The inability for sports to be conducted remotely could explain why the participants need for autonomy is not related to commitment to sport. They cannot actually compete, whereas employees are still able to work in some capacity. With the pandemic controlling so much and dictating a lot about how the world, and in this context, the sporting world works, people in sport feel less perceived control over their actions. The measure of the perceived need for autonomy used to assess the adults in this study comprised items about making decisions or choices in sport. These opportunities for autonomy would be difficult for these adults involved in sport during the COVID-19 lockdown.

Limitations and Future Research Directions

The results of this study should be considered in light of certain limitations. First, the study employed self-report measures which can carry participant biases in responses (e.g., social desirability bias). To mitigate this bias, study participants were informed of anonymity in their responses prior to the start of the survey questions. Further, the study topic is centered around COVID-19, which may or may not play a big role in the future of sports depending on vaccination rollout and a return to public events. So, it is important to keep in mind the research findings within the timeframe in which the research was conducted, especially if the world of sports returns to a state of normalcy in the near future. Future research should be cognizant of the timeframe in which this research was conducted, because questions may be considered differently by participants when sports are back, so it is important to not generalize results to normal circumstances since the study was not conducted during a normal time. Another potential limitation is the generalizability of the study sample. A snowball sampling method was used for convenience because the pandemic restricted ways to advertise the study. It could be that the adult athlete participants for this study are highly committed to sport relative to other adult athletes because they took the time to fill out a survey on sport commitment. And adults who struggle with sport commitment may be less inclined to respond to a survey on this topic, especially when sports are not a part of their weekly lifestyle.

Future research should look into whether the findings for autonomy in this study remain consistent in the post COVID-19 sporting world. As well, further investigation is needed to examine potential differences between younger and older adults in terms of sport commitment. Exact age was not looked at in this study, only 18 or older was the requirement. It is possible the sample age was skewed toward younger adults as the majority or toward older adults as the

majority. Either way, specifying ages or an age range (i.e. 20-25, 26-31) could help with determining whether certain age groups of adults have higher commitment and the relationship between age and commitment. Future studies should also look into whether there are any differences between specific sports (i.e., volleyball vs. soccer). For my study, I grouped different types of organized sport together in the findings because I was more concerned with the general trend of sporting commitment for adults than I was with commitment to a specific sport. However, it may be that there are important differences between certain sports and future research should look into those potential differences. For example, the levels of SDT basic psychological needs and their relationship with commitment to sport could differ between two specific sports such as soccer and singles tennis. Soccer represents a team sport and singles tennis represents an individual sport. Future research could examine whether motivational differences emerge between these types of sports and assess how these differences impact commitment to sport.

Conclusion

Results from this research study build upon previous research (Ng et al., 2010) by employing the Basic Needs Satisfaction in Sports Scale to assess basic need satisfaction in sport for: autonomy, competence, and relatedness (Deci & Ryan, 2000). These results highlight the importance of the basic psychological need satisfaction of both competence and relatedness in sport to help maintain commitment as an adult participating in organized sport. However, autonomy support was not positively associated with commitment to sport. This interesting result may be explained in part by COVID-19 preventing people in sport from engaging freely in their typical sporting environments with their community of peers and coaches, etc. Indeed, past research has cited sporting environments that provide support to athlete's basic psychological

needs as being more likely to lead athletes to autonomous motivation in sport (Karamitrou et al., 2017). So, without the capability to experience these supportive sporting environments combined with the potential lack of perceived control during a pandemic, it is plausible that perceived autonomy would be low. Considering the positive relationships of competence, relatedness, and level of sport with commitment to sport, strategies to maintain commitment may rely on feeling competent in sport, closely related to others in sport, and important for adults playing at a competitive level of sport. These findings build on previous research that supports SDT basic psychological needs as key components for sport motivation as well as helping to explain what adults are internally struggling with in order to maintain commitment to sport during lockdown. The findings also offer some insight on what types of athletes are more likely to be committed to sport and which SDT needs are linked with commitment to sport for adults.

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Appendix A

Basic Needs Satisfaction in Sports Scale from Ng et al. (2010)

Answer these items keeping in mind how you feel during the COVID-19 pandemic. The following items assess competence.

	Not True at all						Very True
	1	2	3	4	5	6	7
1	I can overcome challenges in my organized sport.						
2	I am skilled at my organized sport.						
3	I feel I am good at my organized sport.						
4	I get opportunities to feel that I am good at my organized sport.						
5	I have the ability to perform well in my organized sport.						

Answer these items keeping in mind how you feel during the COVID-19 pandemic. The following items assess autonomy (choice)

	Not True at all						Very True
	1	2	3	4	5	6	7
6	In my organized sport, I get opportunities to make choices.						
7	In my organized sport, I have a say in how things are done.						
8	In my organized sport, I can take part in the decision-making process.						
9	In my organized sport, I get opportunities to make decisions.						

Answer these items keeping in mind how you feel during the COVID-19 pandemic. The following items assess Relatedness.

	Not True at all						Very True
	1	2	3	4	5	6	7
10	In my organized sport, I feel close to other people.						
11	I show concern for others in my organized sport.						
12	There are people in my organized sport who care about me.						
13	In my organized sport, there are people who I can trust.						
14	I have close relationships with people in my organized sport.						

Commitment to Sport Items from Foster (2017)'s Athletic Identity Measurement Scale (AIMS)

Please use the scale to indicate the extent to which you agree or disagree with each statement in relation to your own sports participation. (1 = “strongly disagree” to 7 = “strongly agree”)

1. I consider myself an athlete.
2. I have many goals related to my organized sport.
3. Most of my friends are athletes.
4. My organized sport is the most important part of my life.
5. I spend more time thinking about my organized sport than anything else.
6. I feel bad about myself when I do poorly at my organized sport.
7. I was upset when COVID-19 prevented me from competing in my organized sport.

Appendix B

4/20/2021

<https://arise.ualberta.ca/ARISE/sd/Doc/0/18B54JSUJQL4D7HC0A5630OR2C/fromString.html>**Notification of Approval**

Date: November 10, 2020
Study ID: Pro00103711
Principal Investigator: [Adam Beeby](#)
Study Supervisor: [Lia Daniels](#)
Study Title: COVID-19 impact on adult athletes' commitment to sport and their basic psychological needs
Approval Expiry Date: Tuesday, November 9, 2021

Approved Consent Form:	Approval Date	Approved Document
	11/10/2020	Consent form - Honors thesis

Thank you for submitting the above study to the Research Ethics Board 2. Your application, including the following, has been reviewed and approved on behalf of the committee.

- Recruitment Poster for Thesis Study (11/5/2020)
- Email Template for Recruitment (11/5/2020)
- Twitter Advertisement for Honors Thesis (11/5/2020)
- Questionnaire - Honors Thesis (10/9/2020)

Approval by the Research Ethics Board does not encompass authorization to recruit and/or interact with human participants at this time. Researchers still require operational approval as applicable (eg AHS, Covenant Health, ECSD etc) and where in-person interactions are proposed, institutional and operational requirements outlined in the Resumption of Human Participant Research - June 24, 2020 must be met.

Sincerely,

Stanley Varnhagen, Ph.D.
Associate Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).

