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*Examining and addressing constraints to sport participation among ethnically diverse female adolescents*

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### **Project Summary**

The objectives of this mixed-methods study were to evaluate individual, environmental and task constraints of sport participation among ethnically diverse adolescent girls, and to examine interactions of constraints that may influence sport participation. Quantitative analyses were based on a sample of 825 female adolescents who reside in Ontario, Canada. Significant constraints to sport participation included weather (environmental), development and age (individual), and physical intensity (task), with no significant interactions. Qualitative findings suggest that individual and environmental constraints interact to influence sport participation among ethnically diverse female adolescents.

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### **Research Methods**

This study collected data from female adolescent survey respondents. Using a non-probability voluntary sample method, we recruited participants through school boards, private education programs, community organizations, and social media advertising. The survey was developed based on two theoretical frameworks - Newell's model (K. M. Newell, 1986) and the DAP framework (Scales 1999) – as well as an extensive literature review to identify constraints to sport participation. The survey consisted of 67 question on environmental, individual, and task constraints, as well as demographic characteristics including age, immigration status, parental education, body type, and employment. Environmental constraints comprised of 7 indices and 4 independent constraints. Indices included access, built environment, family support, social support, neighbourhood perception, physical environment, and weather. Individual constraints included 3 indices (identity, values, and developmental) and 4 independent constraints (age, overall health, ethnicity, and body type). There were eight task constraints, including competitive, recreational, physically intense, strict rules, co-ed, contact between players, long duration, and perseverance. The primary outcome in this study was regular sport participation (3 times per week or more). Quantitative analysis used IBM SPSS statistical software. We examined between group differences among regular sport participants and non-participants using t-tests of continuous variables and chi square for categorical variables. We conducted a series of unadjusted and adjusted binary logistic regression models and three exploratory bivariate logistic regression models to determine which constraints

significantly predicted sport participation ( $p < 0.05$ ). The qualitative component included thematic analysis by two researchers, and consisted of de-identifying and analyzing key themes that emerged from five focus groups and two one-on-one semi-structured interviews.

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## Research Results

We based our quantitative analysis on 825 female adolescents aged 13 to 19 years from Ontario, Canada. 53.2% of participants regularly participated in sport. The average age of participants was 16.8 (SD 1.2) years and participants were primarily white (63.7%), born in Canada (85.7%) and had a self-rated overall health score of 3.35 (SD 0.95) out of 5. Compared to regular sport participants, a larger proportion of non-participants were immigrants ( $p=0.032$ ), identified themselves as overweight ( $p=0.000$ ), were unemployed ( $p=0.000$ ), and had lower levels of parental education ( $p=0.000$ ). Regular sport participants reported significantly higher average scores (indicating lower perceived barriers) on all environmental, individual and task constraint indices compared to non-participants. Non-indexed individual constraints showed significant differences in self-rated overall health between sport participants (M 3.65, SD 0.876) and non-participants (M 3.02, SD 0.911). The proportion of participants who reported task constraints was significantly greater in the non-participant group compared to participants in all task constraint categories.

Among environmental constraints, weather (OR: 1.093), social support (OR: 1.216) and family support (OR: 1.178) were all significantly associated with increased odds of sport participation. Developmental (OR: 1.163), values (OR: 1.124), and identity (OR: 1.193) and lower age (OR: 0.791) were all significantly positively associated with sport participation. Those who reported greater likelihood of participating in sports that required competition (OR: 1.821) physical intensity (OR: 1.953), games of long duration (OR: 2.031) and perseverance (OR: 3.490) had greater odds of sport participation. Those who reported greater likelihood of participating in sports that were recreational (OR: 0.682) had a significantly decreased likelihood of sport participation. When all significant predictors from each of the three constraint categories were entered into a separate model together, weather, developmental and the physically intense task constraint predictors remained significant in their association with increased odds of sport participation. The final regression model indicated no significant interactions between the different type of constraints.

Qualitative analysis revealed three sub-themes related to individual constraints that influence sport participation; these consisted of perceptions and beliefs (e.g., stereotypes), experiences (e.g., feeling not welcomed), and time or energy. Within environmental constraints, subthemes consisted of support system, accessibility, and family environment. Within task constraints, requirement of sport and development of skills were identified as important constraints. Analysis revealed an interplay of individual and environment factors that influence sport participation, mainly confidence and parental support.

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## **Policy and Program Implications**

Our results highlight the role of developmental experiences (previous sport experiences, belonging, and attitudes) and beliefs in predicting sport participation in girls. Physical intensity of sport, weather, and age were also associated with sport participation. Perceived competence, perceived skill, self-esteem and internal factors such as confidence, self-belief or fear of embarrassment affect sport participation among girls. Environmental constraints such as social and family support and weather were also found to affect sport participation among participants. Although task constraints played less of a role among this sample, certain factors that linked to other constraints affected participation in sport. For example, physical intensity may link to perceived competence, in which a participant may feel that the sport is too intense because they do not have the necessary skills to participate. These findings can inform the Canadian sport sector in order to enhance female participation in sports. Sport participation initiatives should target females at a young age with positive experiences that target their self-efficacy, enjoyment, and contribution in relation to sports. In addition, gender messaging can address the positive aspects of sport participation and confirm that it does not conflict with the 'feminine image'. Sport initiatives should consider a range of intensities, physical environments, as well as social environments such as leveraging family and peer support thus addressing the priority constraints that this study has identified.

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## **Next Steps**

Although quantitative analysis did not identify any constraint interactions, this research provides a framework for future studies with larger samples that examine the complexities of sport participation in young women. Prospective designs are also needed to examine causality or association directions between the different types of constraints and sport participation. Additionally, although the constraints explored in this study are guided by previous literature, they may not be in-depth enough to capture the complex interactions that occur in influencing females' sport participation. It is possible that key constraints are missing. For example, we may have missed constraints related to social norms or expectations experienced by adolescent females, as well as those related to mental disorders such as depression and anxiety, which commonly emerge during adolescence, and which females disproportionately experience. Given the impact of sport participation on future health outcomes, these are important considerations for future research.

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## **Knowledge Translation**

This report should be disseminated to all community sport organizations who have sport programs for young girls. We also plan to follow-up with knowledge translation products that target young girls, parents, and the sport sector. Preliminary thoughts are directed towards infographics disseminated through social media.

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