Economics Bulletin

Volume 45, Issue 2

Type 1 diabetes and youth sports in Sweden: a field experiment on discrimination

Ali Ahmed
Linköping University

Mats Hammarstedt
Linnaeus University

Abstract

This study evaluated discrimination against children with Type 1 Diabetes Mellitus (T1DM) in Swedish sports clubs through a field experiment. Two fictitious fathers sent emails to 193 top-division clubs in football, floorball, ice hockey, and handball, one disclosing his son's T1DM condition. The investigation focused on disparities in clubs' responses and the information provided. Results indicated no statistically significant difference in positive or comprehensive responses between emails mentioning T1DM and those that did not, though the observed differences in response rates suggest that limited statistical power may have obscured small but meaningful disparities. This highlights the need for cautious interpretation and further study.

We thank a reviewer of the journal for valuable comments on an earlier version of this paper. We are also grateful to the participants of the 8th World Conference on Social Sciences (2025) for their constructive feedback.
Citation: Ali Ahmed and Mats Hammarstedt, (2025) "Type 1 diabetes and youth sports in Sweden: a field experiment on discrimination", *Economics Bulletin*, Volume 45, Issue 2, pages 1083-1087
Contact: Ali Ahmed - ali.ahmed@liu.se, Mats Hammarstedt - mats.hammarstedt@lnu.se.
Submitted: May 04, 2025. **Published:** June 30, 2025.

Economics Bulletin

Volume 45, Issue 2

Type 1 diabetes and youth sports in Sweden: a field experiment on discrimination

Ali Ahmed
Linköping University

Mats Hammarstedt
Linnaeus University

Abstract

This study evaluated discrimination against children with Type 1 Diabetes Mellitus (T1DM) in Swedish sports clubs through a field experiment. Two fictitious fathers sent emails to 193 top-division clubs in football, floorball, ice hockey, and handball, one disclosing his son's T1DM condition. The investigation focused on disparities in clubs' responses and the information provided. Results indicated no statistically significant difference in positive or comprehensive responses between emails mentioning T1DM and those that did not, though the observed differences in response rates suggest that limited statistical power may have obscured small but meaningful disparities. This highlights the need for cautious interpretation and further study.

We thank a reviewer of the journal for valuable comments on an earlier version of this paper. We are also grateful to the participants of the 8th World Conference on Social Sciences (2025) for their constructive feedback.
Citation: Ali Ahmed and Mats Hammarstedt, (2025) "Type 1 diabetes and youth sports in Sweden: a field experiment on discrimination", *Economics Bulletin*, Volume 45, Issue 2, pages 1083-1087
Contact: Ali Ahmed - ali.ahmed@liu.se, Mats Hammarstedt - mats.hammarstedt@lnu.se.
Submitted: May 04, 2025. **Published:** June 30, 2025.

1. Introduction

Previous research has documented disparities in economic outcomes between children with Type 1 Diabetes Mellitus (T1DM) and their peers. These studies indicate that children with T1DM tend to experience a higher prevalence of mental illness, achieve lower grades in school, and earn lower incomes later in life (Northam et al., 2005; Dahlqvist & Källén, 2007; Milton et al., 2006).

An active lifestyle, including participation in sports, is a crucial factor for enhancing the quality of life of children with certain health conditions. Sports clubs offer a platform for such activities. In this study, we conducted a field experiment to explore how open sports clubs are to including children with T1DM in their training activities, thereby assessing these children's opportunities for active participation.

To investigate whether children with T1DM face discrimination from sports clubs in Sweden, our experiment involved two fathers sending emails to these clubs. One father mentioned his son's T1DM diagnosis six months ago, while the other father's email contained no such information. This approach allowed us to assess the clubs' responses to children with and without a T1DM diagnosis.

Studying discrimination against different groups of people in various markets and across countries using field experiments has proven to be powerful (Bertrand & Duflo, 2017; Baert, 2018). Turning our focus to discrimination against children with T1DM, the study by Ahmed et al. (2021) revealed its presence in Swedish schools, specifically when parents apply for their children's admission to the mandatory preschool class.

2. Theoretical backdrop

Understanding why sports clubs might discriminate—explicitly or implicitly—against children with T1DM requires considering several potential mechanisms rooted in established discrimination theories. One possible explanation is statistical discrimination (Phelps, 1972; Arrow, 1973), where decision-makers rely on group-based assumptions to assess individual suitability. In this context, club representatives might (incorrectly) assume that children with T1DM are more prone to medical emergencies, require extensive accommodations, or are less physically capable, leading to a cautious or hesitant response, even in the absence of direct prejudice.

Another possible mechanism is taste-based discrimination (Becker, 1957), where personal or institutional biases against individuals with health conditions result in exclusion, regardless of their actual abilities or needs. Though arguably less likely in a setting that promotes inclusion, such attitudes could still subtly influence decision-making. Finally, concerns about liability or safety may also play a role: clubs may worry about the responsibility of managing a child with a chronic illness during physical activities, especially if they lack medical training or established protocols. These mechanisms—whether based on risk perception, stereotypes, or aversion—highlight the importance of empirically examining whether such discrimination occurs at all, as we do in this study.

3. Method

In this experiment, we reached out to all sports clubs in the highest leagues of Sweden's four largest team sports: football, floorball, ice hockey, and handball. For football, we contacted clubs in the "Allsvenskan," "Superettan," and "Division 1" leagues of the 2023 season. Similarly, the clubs in the "Svenska Superligan" and "Allsvenskan" for the 2023–24 season were approached in floorball. Ice hockey clubs from the "Svenska Hockeyligan," "Allsvenskan," and "Hockeyettan" for the 2023–24 season and handball clubs from the "Handbollsligan" and "Allsvenskan" for the same season were also contacted. A total of 195 sports clubs were initially approached via email by two fictitious fathers with typically Swedish-sounding names. Due to email malfunctions, two clubs were excluded, resulting in a final sample of 193 clubs. Email inquiries were made to the clubs using addresses found on their websites, either by a father with a son without disabilities or by a father whose son had T1DM.

We focused exclusively on organizations, specifically higher-division sports clubs, and did not process personal data. Consequently, there were no direct risks to individuals associated with this project. We anonymized all data to ensure no specific sports club could be identified from our results. We aimed to analyze aggregated data rather than individual clubs. We deliberately excluded those in the lower divisions to minimize the potential impact on individuals who often have personal and direct responsibilities in smaller clubs. This approach was taken to prevent our findings' adverse effects on these individuals.

Our experiment included only one experimental manipulation, comparing how sports clubs treat a boy with T1DM versus a boy without disabilities. We utilized a "between-subjects," randomized design, where each sports club received an email from one of two fictitious fathers, randomly assigned. The email asked whether the father's son could join the club's training and requested information about the team's training schedules. The email inquiry looked as follows:

> Hi! We have recently moved and have an 8-year-old son who is enthusiastic about playing football | floorball | ice hockey | handball, and is looking for a team to train with. Is he welcome to join your club? Could you please provide information about the team and training times? [Additionally, I would like to inform you that my son was diagnosed with Type 1 Diabetes six months ago.] Regards, Lars Johansson.

The primary distinction between the two fictitious fathers' emails was the inclusion of a statement about the son having T1DM, indicated in brackets, for the father of the son with T1DM. We recorded the sports clubs' responses as outcome variables in the experiment, focusing primarily on two aspects represented as dummy variables:

1. Whether the fathers received a *positive response*, in a broad sense, from the sports clubs, essentially indicating acceptance (i.e., a non-rejection).
2. Whether the fathers received a *complete response* that included confirmation of the son's welcome to join the club's training and details about the team and training schedules.

Hence, the second outcome variable is more stringent than the first. By examining whether there are differences in these outcomes between the father with a son with T1DM and the father with a son without disabilities, our experiment seeks to answer whether discrimination against children with disabilities occurs in interactions with Swedish sports clubs.

The experiment took place in November 2023. We dispatched all 193 inquiries on a single day, allowing sports clubs a two-week period to respond. The data supporting the findings of this study are available on Zenodo (https://doi.org/10.5281/zenodo.10222563). The project underwent an ethical review by the Swedish Ethical Review Authority (Case number: 2023-06117-01).

4. Results

Tables 1 and 2 summarize the results of our experiment. Table 1 details the likelihood of receiving a *positive response* from sports clubs under the two conditions in our experiment, covering both collective data for all sports and specific data for individual sports. The results reveal that, across all sports, a father with a non-disabled son received a positive response from the clubs in 77% of instances, whereas a father with a son with T1DM received a positive response 66% of the time. This indicates that fathers of sons without disabilities were about 17% more likely to receive positive responses compared to those with sons diagnosed with T1DM. This disparity is weakly significant according to the χ^2-test but does not reach statistical significance at conventional levels in the Fisher exact test ($p = .109$). When examining each sport individually, no statistically significant differences were found between the control and treatment conditions.

Table 1

Probability of receiving a positive response

	Control	T1DM	χ^2-test
All sports	77% (78/101)	66% (61/92)	$\chi^2(1, N = 193) = 2.85, p = .091$
Football	67% (22/33)	52% (15/29)	$\chi^2(1, N = 62) = 1.43, p = .231$
Floorball	83% (15/18)	67% (12/18)	$\chi^2(1, N = 36) = 1.33, p = .248$
Ice hockey	80% (28/35)	72% (23/32)	$\chi^2(1, N = 67) = 0.61, p = .436$
Handball	87% (13/15)	85% (11/13)	$\chi^2(1, N = 28) = 0.24, p = .887$

Note: Number of *positive responses* and total number of cases are given in parentheses. The Fisher exact test led to the same conclusions, generating slightly larger p-values. Hence, the difference between conditions over all sports in the first row does not remain statistically significant when using the Fisher exact test.

Table 2

Probability of receiving a complete response

	Control	T1DM	χ^2-test
All sports	11% (11/101)	13% (12/92)	$\chi^2(1, N = 193) = 0.21, p = .645$
Football	0% (0/33)	3% (1/29)	$\chi^2(1, N = 62) = 1.16, p = .282$
Floorball	17% (3/18)	11% (2/18)	$\chi^2(1, N = 36) = 0.23, p = .630$
Ice hockey	17% (6/35)	13% (4/32)	$\chi^2(1, N = 67) = 0.28, p = .594$
Handball	13% (2/15)	38% (5/13)	$\chi^2(1, N = 28) = 2.35, p = .126$

Note: Number of *complete responses* and total number of cases are given in parentheses. The Fisher exact test led to the same conclusions, generating slightly larger *p*-values.

Table 2 presents the probabilities of receiving a *complete response* from sports clubs, analyzed collectively for all sports and separately for each sport, categorized by control and treatment conditions. In every scenario analyzed, we observed no statistically significant differences in the likelihood of receiving a complete response from the sports clubs when comparing cases of fathers with non-disabled sons to those with sons diagnosed with T1DM.

5. Conclusion

This study explored whether children with T1DM face discrimination when attempting to join sports clubs in Sweden. Our findings revealed a slight, yet not statistically significant, difference in positive response rates from sports clubs to fathers of sons with and without T1DM. This suggests no apparent bias against children with T1DM at the initial point of contact.

Furthermore, we observed no significant difference in the likelihood of receiving comprehensive responses from the sports clubs. This indicates that, upon engaging with the clubs, families of children with T1DM are just as likely to receive detailed information and support as those without the condition. This finding is encouraging as it points to inclusivity in these clubs, especially in terms of practical participation in sports activities. The result is especially important since previous research has shown disparities in economic outcomes between children with T1DM and other children. In discrimination research, it is crucial to report null results and findings contradicting prevailing hypotheses, as they contribute to a more nuanced and comprehensive understanding of the complexities involved.

It is important, however, to recognize the limitations of our study. Our methodology, which relied on email correspondence, might not capture the full extent of personal interactions that could occur. Additionally, focusing on higher-division sports clubs may not provide a complete picture of all sports organizations in Sweden, or other countries. While our findings do not reveal statistically significant differences in response rates between children with and without T1DM, it is essential to acknowledge the limitations related to statistical power. The sample size, although covering the full population of top-division clubs in the selected sports, remains relatively modest for detecting smaller effects with confidence. In particular, the observed differences in positive responses within

individual sports—such as football (67% vs. 52%) and floorball (83% vs. 67%)—may suggest potential disparities that did not reach conventional levels of significance due to limited power. With a larger sample or in replication studies across more clubs, leagues, or countries, these differences might attain statistical significance. Therefore, while the findings suggest inclusivity in Swedish sports clubs, they should be interpreted with caution, and we encourage future research to test the robustness of these results using expanded datasets.

References

Ahmed, A., Hammarstedt, M. & Karlsson, K. (2021). Do schools discriminate against children with disabilities? A field experiment in Sweden. *Education Economics*, *29*(1), 3–16. https://doi.org/10.1080/09645292.2020.1855417

Arrow, K. J. (1973). The theory of discrimination. In Ashenfelter, O. A., & Rees, A. (Eds.), *Discrimination in Labor Markets* (3–33). Princeton University Press, Princeton.

Baert, S. (2018). Hiring discrimination: An overview of (almost) all correspondence experiments since 2005. In Gaddis, S. (Ed.), *Audit Studies: Behind the Scenes with Theory, Method, and Nuance* (63–77). Springer, Cham. https://doi.org/10.1007/978-3-319-71153-9_3

Becker, G. S. (1957). *The Economics of Discrimination*. University of Chicago Press, Chicago.

Bertrand, M. & Duflo, E. (2017). Field experiments on discrimination. In Banerjee, A., & Duflo, E. (Eds.), *Handbook of Economic Fields Experiments* (309–393). North Holland, Amsterdam. https://doi.org/10.1016/bs.hefe.2016.08.004

Dahlqvist, G., & Källén, B. (2007). School performance in children with type 1 diabetes-a population-based register study. *Diabetologica*, *50*(5), 957–964. https://doi.org/10.1007/s00125-007-0615-2

Milton, B., Holland, P., & Whitehead, M. (2006). The social and economic consequences of childhood-onset Type 1 diabetes mellitus across the lifecourse: a systematic review. *Diabetic Medicine*, *23*(8), 821–829. https://doi.org/10.1111/j.1464-5491.2006.01796.x

Northam, E.A., Matthews, L.K., Anderson, P.J., Cameron, F.J., & Werther, G.A., (2005). Psychiatric morbidity and health outcome in type 1 diabetes-perspectives from a prospective longitudinal study. *Diabetic Medicine*, *22*(2), 152–157. https://doi.org/10.1111/j.1464-5491.2004.01370.x

Phelps, E. S. (1972). The statistical theory of racism and sexism. *American Economic Review*, *62*(4), 659–661. https://www.jstor.org/stable/1806107