



A closer inspection of diabetes-related stigma: why more research is needed

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Received: 29 November 2019 / Published online: 21 December 2019
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Abstract

In the past few years, diabetes-related stigma has rapidly gained attention around the world. Many studies, including our study, show that a diabetes population is globally impacted by disease-specific stigma across age, gender, educational levels, employment status, and race/ethnicity. However, it still remains unclear whether some of these socioeconomic factors are more influential in terms of the social vulnerability of the exposed individuals with type 2 diabetes. Understanding how diabetes-related stigma influences patients through these socioeconomic and racial/ethnic factors, and how these impacts vary according to different patient populations would help us gain a further understanding of diabetes-related stigma as a whole. Thus, most importantly, we should establish a comprehensive, coherent study design (e.g., cross-regional study, cross-national study), identify more vulnerable patient populations, and tackle diabetes-related stigma in collaborative efforts with patients, clinicians, researchers, academic societies, governments, and all involved parties around the globe.

In the past few years, diabetes-related stigma has rapidly gained attention around the world. At the 79th American Diabetes Association Scientific Sessions in San Francisco in 2019, Virginia Valentine had an intriguing lecture for both clinicians and patients titled “The Most Important Thing We Give to People is Hope—Overcoming Stigma in Diabetes and Obesity” [1]. Supported by many academic societies around the world, diabetes-related stigma has started to be investigated vigorously. Growing evidence reveals that people with type 2 diabetes report experiencing and/or perceiving disease-specific stigma [2–5]. Some people with type 2 diabetes report that they feel judged, blamed, and shamed because of the diagnosis, feedback (either from glucose monitoring devices, blood test results, or their health-care providers) revealing inadequate glycemic control, and diabetes-related complications associated with the performance of their daily self-care behaviors [3, 4]. As a result, diabetes-related stigma leads to concealment attempts such

as delaying insulin injection therapy and refusing to disclose their disease to others [3, 4, 6, 7].

In a study by Liu NF et al. in 2017, researchers found that 52% of the study participants with type 2 diabetes had reported experiencing and/or perceiving diabetes-related stigma in the United States [5]. Increased perceptions of diabetes-related stigma were associated with being female and having higher educational levels. In another study by Olesen K et al. in 2017, researchers found that 23% of the study participants had not disclosed their type 2 diabetes status to their current employer due to stigma in Denmark, and that non-disclosure was not associated with gender, but with higher educational levels [8]. It is still unclear whether some of these factors (e.g., gender, educational levels, race/ethnicity) are more influential in terms of the social vulnerability of the exposed individuals with type 2 diabetes.

In Japan, too, we conducted a self-reported patient questionnaire regarding diabetes-related stigma and disclosure in the workplace through a cross-sectional study. We reached out 209 outpatients with type 2 diabetes aged 20–74 through their current physicians at two university hospitals, one general hospital, and one clinic in Tokyo, Japan. We then excluded data of study participants who were unemployed, full-time homemakers, management executives, self-employed, or pension beneficiaries from the analysis. In total, we analyzed 89 patients with type 2 diabetes using binominal logistic regression analysis for age, sex, BMI,

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diabetes duration, hemoglobin A1c, diabetes-related complications, insulin injection therapy, educational levels, and employment status as independent variables and diabetes disclosure to supervisors in the workplace as a dependent variable.

We found that 50.6% of study participants had not disclosed their type 2 diabetes status to their supervisors in their Japanese workplace, and that patients who had not disclosed diabetes were significantly more likely to be associated with no insulin injection therapy compared to those who had disclosed their status (OR, 3.33; 95% CI, 1.07–10.29; $p=0.03$). Additionally, patients who had not disclosed their diabetes status tended to have lower educational levels ($\beta = -0.41$), be older in age ($\beta = 0.05$), and be employed part-time ($\beta = -0.08$). These results suggest a possibility that individuals with type 2 diabetes who have lower educational levels, are older in age, and/or are employed part-time may need to continue working due to a socioeconomically unstable labor environment. In such environments, people may hesitate to disclose their diabetes status in the workplace and be less likely to use insulin injection therapy. One probable reason for this could be financial pressures: people with type 2 diabetes may feel that they have to maintain their glycemic control using only oral hypoglycemic agents, since seeking insulin injection therapy could jeopardize their standing at work.

To date, these studies clearly show that a diabetes population is globally impacted by disease-specific stigma across age, gender, educational levels, employment status, and race/ethnicity. However, it still remains unclear whether some of these socioeconomic factors are more consequential than others in different populations. Beliefs, perceptions, and experiences regarding diabetes-related stigma can be largely influenced by society and culture [9, 10]. Understanding how diabetes-related stigma influences patients through these socioeconomic and racial/ethnic factors, and how these impacts vary according to different patient populations would help us to gain a further understanding of diabetes-related stigma as a whole. Thus, most importantly, we should establish a comprehensive, coherent study design (e.g., cross-regional study, cross-national study), identify more vulnerable patient populations, and tackle diabetes-related stigma in collaborative efforts with patients, clinicians, researchers, academic societies, governments, and all involved parties around the globe.

Acknowledgements This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. We are grateful to the physicians who recruited patients for this study. Specifically, we would like to extend our thanks to Dr. Yuko Fujimaki and Dr. Shin Fujimori from Teikyo University, Dr. Akihiro Isogawa from Mitsui Memorial Hospital, Dr. Yukiko Onishi from The Institute for Adult Diseases Asahi Life Foundation, and Dr. Ryo Suzuki and

Dr. Kohjiro Ueki from The University of Tokyo. We are also grateful to the many graduate students who helped with data collection, and particularly all study participants.

Author contributions AK conceptualized and designed the study. AK coordinated the study acquired, analyzed, and interpreted the data, and prepared the paper. TY and TK helped to analyze the data and made significant contributions to the critical interpretation of the results in terms of important practical content. All authors read and approved the final version of the manuscript. AK held primary responsibility for data access. As corresponding author, AK confirms that she has full access to the data in the study and has final responsibility for the decision to submit for publication.

Compliance with ethical standards

Conflict of interest Asuka Kato has nothing to disclose. Toshimasa Yamauchi reports honoraria from Astellas Pharma Inc., AstraZeneca K.K., Ono Pharmaceutical Co., Ltd., Sanofi S.A., Takeda Pharmaceutical Co., Ltd., Daiichi Sankyo Co., Ltd., Novartis International AG, and Novo Nordisk Pharma Ltd., research funding from AstraZeneca K.K., Kowa Pharmaceutical Co., Ltd., Merck Sharp & Dohme Co., Daiichi Sankyo Co., Ltd., Sanofi S.A., Boehringer Ingelheim GmbH Japan, and AeroSwitch, subsidies or donations from Novo Nordisk Pharma Ltd., Ono Pharmaceutical Co., Ltd., Mitsubishi Tanabe Pharma Corporation, Sanofi S.A., Taisho Pharmaceutical Co., Ltd., Kissei Pharmaceutical Co., Ltd., Kyowa Kirin Co., Ltd., and Daiichi Sankyo Co., Ltd., and endowed departments by commercial entities from Takeda Pharmaceutical Co., Ltd., Ono Pharmaceutical Co., Ltd., Novo Nordisk Pharma Ltd., Mitsubishi Tanabe Pharma Corporation, Merck Sharp & Dohme Co., Boehringer Ingelheim GmbH Japan, Kowa Pharmaceutical Co., Ltd., and Asahi Mutual Life Insurance Company. Takashi Kadowaki reports honoraria from Astellas Pharma Inc., AstraZeneca K.K., Nippon Boehringer Ingelheim Co., Ltd., Eli Lilly Japan K.K., MSD Corporation, Mitsubishi Tanabe Pharma Corporation, Novo Nordisk Pharma Ltd., Ono Pharmaceutical Co., Ltd., Sanofi K.K., Sumitomo Dainippon Pharma Co., Ltd., Takeda Pharmaceutical Co., Ltd., and Terumo Co., Ltd., manuscript fees from Takeda Pharmaceutical Co., Ltd., research funding from AstraZeneca K.K., Daiichi Sankyo Co., Ltd., and Takeda Pharmaceutical Co., Ltd., subsidies or donations from Astellas Pharma Inc., Daiichi Sankyo Co., Ltd., Kissei Pharmaceutical Co., Ltd., Mitsubishi Tanabe Pharma Corporation, Novo Nordisk Pharma Ltd., Ono Pharmaceutical Co., Ltd., Sanofi K.K., Sumitomo Dainippon Pharma Co., Ltd., Taisho Pharmaceutical Co., Ltd., and Takeda Pharmaceutical Co., Ltd., and endowed departments by commercial entities from Asahi Mutual Life Insurance Company, Nippon Boehringer Ingelheim Co., Ltd., Kowa Pharmaceutical Co., Ltd., MSD Corporation, Mitsubishi Tanabe Pharma Corporation, Novo Nordisk Pharma Ltd., Ono Pharmaceutical Co., Ltd., and Takeda Pharmaceutical Co., Ltd.

Informed consent All the participants signed written consent forms. This study was approved by the Research Ethics Committee of the University of Tokyo Graduate School of Medicine and Faculty of Medicine and was approved and supported by the participating facilities (Approval No. 3629; September 17, 2013).

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