



LEEDS
BECKETT
UNIVERSITY

Citation:

Lorenz, T and Bruening, C and Waltz, M and Fabri, M (2021) Not a Stranger to the Dark: Discrimination against Autistic Students and Employees. *Advances in Autism*. ISSN 2056-3868 DOI: <https://doi.org/10.1108/AIA-10-2019-0036>

Link to Leeds Beckett Repository record:

<http://eprints.leedsbeckett.ac.uk/id/eprint/7475/>

Document Version:

Article (Accepted Version)

The aim of the Leeds Beckett Repository is to provide open access to our research, as required by funder policies and permitted by publishers and copyright law.

The Leeds Beckett repository holds a wide range of publications, each of which has been checked for copyright and the relevant embargo period has been applied by the Research Services team.

We operate on a standard take-down policy. If you are the author or publisher of an output and you would like it removed from the repository, please [contact us](#) and we will investigate on a case-by-case basis.

Each thesis in the repository has been cleared where necessary by the author for third party copyright. If you would like a thesis to be removed from the repository or believe there is an issue with copyright, please contact us on openaccess@leedsbeckett.ac.uk and we will investigate on a case-by-case basis.

Not A Stranger to the Dark:
Discrimination Against Autistic Students and Employees.

Timo Lorenz^{1*}; Chelsea R. Brüning¹; Marc Fabri²

¹ : MSB Medical School Berlin, Berlin, Germany

² : Leeds Beckett University, Leeds, UK

*: corresponding author: timo.lorenz@medicalschooll-berlin.de

Abstract

Students and employees on the autism spectrum often need to overcome barriers and discrimination when applying for a job or retaining employment. These barriers were split into three different categories: formality - problems that focus on organizational structures in the application process -, social - communication and interaction problems - and job demand barriers - obstacles that epitomize work-related strains. This study's purpose was to reveal such barriers, as well as their coherences between discrimination and self-perceived employability. Fifty-three individuals on the autism spectrum participated in an online survey. Results showed significant coherences between both formality and social barriers with discrimination. Formality barriers also indicated significant coherences with employability. A mediation model with discrimination as mediator between each type of barriers and employability was examined. The non-significant results suggest that discrimination does not work as superior construct, but as sole influence next to barriers and employability. According to implications found, possible starting points for future research as well as practical strategies are discussed in order to overcome barriers and change discriminatory attitudes toward skilled individuals on the autism spectrum.

Keywords: discrimination, employability, barriers to employment, students and employees on the autism spectrum

Employment often embodies a significant role in an individual's life, by increasing well-being and pride, enabling social relations, providing a meaningful task in a person's life and being able to contribute to the productivity of society (Andersson, Luthra, Hurtig, & Tideman, 2015). However, unemployment rates for individuals with disabilities have are higher when compared to individuals without disabilities (Ju, Roberts, & Zhang, 2013). Diversity often focuses on women (e.g. Stringer, 1995), religious (e.g. Duemmler & Nagel, 2013; Jacquet & D'Amico, 2016) or ethnic (Laurence, Schmid, & Hewstone, 2018; e.g. West et al., 2016) groups in the workplace. A less common approach depicts the inclusion of qualified workers with disabilities (e.g. Kirk-Brown, Van Dijk, Simmons, Bourne, & Cooper, 2014; McQuade, 2002), especially mental disabilities (Ozawa & Yaeda, 2007), such as major depression or bipolar condition (Russinova, Griffin, Bloch, Wewiorski, & Rosoklija, 2011) and conditions like autism (Lorenz & Heinitz, 2014; Rashid, Hodgetts Nicolas, 2017; Rosqvist & Keisu, 2012).

The World Health Organization (WHO) estimates that 1 in 160 children worldwide is an individual on the autism spectrum (2018). Furthermore the WHO stated in their World Report on Disability (2011) that people with disabilities were significantly less likely to be employed than non-disabled workers. One reason for these outcomes may be the common view that can be found across Eastern and Western cultures: Employing people with disabilities appears to be less favorable for employers (Fraser et al., 2010; Nota, Santilli, Ginevra, & Soresi, 2014). Four main stigmas seem to exist, (1) dangerousness - especially people with mental disabilities are viewed as dangerous and can therefore harm themselves or others -, (2) incompetence - the disability acts as a barrier and therefore lowers the performance ability of the individual with a disability -, (3) responsibility - the individual with the disability is viewed as responsible for initially acquiring the disability -, and (4) staff conflicts - employing an individual with a disability would cause incongruence in the present team (Rao, Horton, Tsang, Shi, & Corrigan, 2010).

Discrimination and Further Barriers to Employment

Another perspective might be a lack of experience that could provide or lead to prejudice and stereotypes which then can lead to discrimination (Fiske & Lee, 2008; Johnson & Joshi, 2014; Ju et al., 2013; Unger, 2002), as well as stigmatization (Hipes, Lucas, Phelan, & White, 2016). Whilst stereotypes focus on cognitive schemas (Corrigan & Penn, 1999), prejudices represent affective and cognitive domains - being defined as “antipathy based upon a faulty and inflexible generalization” (Allport, 1954, p. 9). Discrimination describes a certain behavior (Dovidio, Hewstone, Glick, & Esses, 2010), such as rather employing a non-disabled individual even when an individual with a disability might be more qualified for the job (Cai & Richdale, 2016; Hernandez et al., 2007).

Many employers think an autistic person would be unlikely to fit into their team or they worry about getting support for an autistic employee wrong (NAS, 2016; Fraser et al., 2010). Moreover, employers fear staff conflicts and litigation because of unknown barriers (Fraser et al., 2010) which would connect with negative perception about their business (Vornholt et al., 2018) when employing workers with disabilities. However, employers reported that they would be likely to employ another individual with a disability again because of previous experiences with the employment of workers with disabilities, including autism (e.g. Rosqvist & Keisu, 2012; Unger, 2002).

Self-Perceived Employability as Resource Despite Employment Rates

A recent longitudinal study showed that employers seem to be even less willing to hire people with developmental conditions, especially autism (Chen, Leader, Sung, & Leahy, 2015; Rashid et al., 2017). Employment rates for adults on the autism spectrum were reported consistently lower when compared to any other group of people with disabilities (Cameto, 2003; Chen et al., 2015); Allen & Coney 2018). Standing to reason, this leads to the issue of whether self-perceived employability is affected by this matter. Rothwell, Herbert and Rothwell

(2008) defined self-perceived employability as the perceived ability to acquire and keep a job, which can be traced back to skills and a person's versatility (Rothwell, Jewell, & Hardie, 2009). However, individuals on the autism spectrum usually prefer a rather consistent and stable environment, especially on the work site. Rapid changes can lead to difficulties for this group, such as stress or depression symptoms (Booth, 2016; D'Cruz et al., 2013).

Besides the aim of providing an insight about discrimination against students and employees on the autism spectrum, the lack of knowledge and experience shall be diminished and overcome by providing explicit material in form of detailed guidelines for job coaches and employers. Considering that only few guides on inclusion of people with disabilities exist (Lighthouse International, 2010), there are even less resources on autistic students and employees.

National Legislation and Counter-Measures

There are some laws on national levels. For example, New Zealand pioneered, passing the evidence-based New Zealand Autism Spectrum Disorder Guideline in 2008 (Ministries of Health and Education) and renewed it in 2016 (Ministries of Health and Education) to ameliorate the quality of life for people on the autism spectrum, specifically in the health, educational and social domain. Although most European countries ratified either the convention or the convention and the protocol of the United Nations Convention on the Rights of Persons with Disabilities (2016), there are still specific international agreements and legislation missing.

Ultimately, stereotypes, prejudices, discrimination and the unemployment gap of highly qualified autistic students and employees are supposed to be diminished by eliminating existing barriers and revealing strengths in which especially individuals on the autism spectrum stand out. However, due to the prevalent *deficit model* of autism which focuses on impairments the individual ought to overcome (Ripamonti, 2016), strengths such as attention to detail, logical

reasoning or reliability (Lorenz & Heinitz, 2014) are usually neglected rather than seen as advantageous competencies.

Research Approach

Barriers can prevent individuals from accessing the labor market (Khan, Korac-Kakabadse, Skouloudis, & Dimopoulos, 2019; Vornholt et al., 2018), which can lead to severe consequences for an individual, including autism, such as poverty, social deprivation or lack of health promotion and equal treatment (World Health Organization, 2011). The lifetime economic costs of supporting an autistic individual who is able to work but not in employment are estimated at £1.2m (Rogge & Janssen, 2019).

These barriers can be centralized into three categories: formality, social and job demand problems (Lorenz, Frischling, Cuadros, & Heinitz, 2016). While formality obstacles mainly focus on the workplace, the individual's professional qualifications and the application process, job demand barriers include impediments that address expected requirements - emotionally and physically - and work-related patterns of a chosen job, as well as consequent implications like stress or strain. Social barriers focus on interaction and communication between workers, clients and superiors.

It is possible that discrimination mediates barriers and self-perceived employability, since barriers can be apprehended as reasons to not apply for a job due to affiliation with a certain minority group (Booth, 2016). However, even if formality and job demand obstacles can be overcome by an individual on the autism spectrum, they might still have to face social barriers which could lead to severe problems of sustaining a job. Employability might be affected by previous discriminating experiences. Furthermore, employer attitudes toward hiring an individual with a disability, such as autism, are often affected by stereotypes and prejudices that lead to discrimination (e.g. Ozawa & Yaeda, 2007; Vornholt, Uitdewilligen, & Nijhuis, 2013).

Therefore, the following explorative hypotheses can be deducted:

Hypothesis 1: Autistic individuals report more social, formality and job demand barriers to employment when their perceived employability was low.

Hypothesis 2: Autistic individuals report higher levels of discrimination when employability was reported to be low.

Hypothesis 3: Autistic individuals report more social, formality and job demand barriers to employment when the perception of discrimination was high.

Hypothesis 4: The relationship between perceived social, formality and job demand barriers and employability is mediated by discrimination.

Method

Participants and Procedure

Individuals on the autism spectrum were recruited via online platforms. The participation was entirely voluntary and their reported data was anonymized. A specific battery of questionnaires was provided online.

Inclusion criteria were that participants stated they understood the purpose of the study, they took part in it voluntarily, understood the mentioned study information and were 18 years or older. One participant had to be excluded due to missing variance in answers. There was no missing data to report.

A specific link for the target group was provided via the online survey software UNIPARK (QuestBack, 2019). Fifty-three German-speaking students and employees on the autism spectrum (females: 30; males: 23) participated in the survey.

Materials

Data security. The landing page of the online battery of questionnaires informed each participant of crucial points, such as anonymization, data usage and research purpose. The

participant was prompted to declare their consent before proceeding. Data was collected in five different countries and languages. It is part of the data set collected by the IMAGE project (<http://www.imageautism.com>). Different groups of participants took part in the survey - academic tutors, high educational managers and policy makers, employers, as well as students and employees on the autism spectrum. Every group was asked to answer a specific battery of questionnaires. This study focuses on the German data only and the relevant questionnaires provided for students and employees on the autism spectrum. Demographic data was gathered, such as country of origin, age, gender, their profession, if they had received an autism spectrum diagnosis from a qualified professional.

Discrimination. Participants were asked if they had experienced discrimination against in the past. The questionnaire consists of 5 items (e.g. “Nobody would be interested in getting close to me because I have autism/am autistic.”) of the Internalized Stigma of Mental Illness Scale (Ritsher, Otilingam, & Grajales, 2003), that can be rated via a 5-point Likert scale, ranging from 0 = “*doesn’t apply*” to 4 = “*applies*”.

Employability. Academic students and employees on the autism spectrum were asked to rate their self-perceptions concerning their employability in 16 items (e.g. “The skills and abilities that I possess are what employers are looking for.”; Rothwell et al., 2008), via a 5-point Likert scale, ranging from 0 = “*doesn’t apply*” to 4 = “*applies*”.

Barriers. Participants were asked to rate potential barriers to employment in 17 items. These were derived from results of the qualitative study by Lorenz, Frischling, Cuadros and Heinitz (2016). Items could be rated via a 5-point Likert scale, ranging from 0 = “*never*” to 4 = “*always*”. Barriers were split into three categories; formality (e.g. “How many times do you have encountered problems with the adjustment phase to a new job?”) - 7 items -, job demand (e.g. “How many times do you have encountered problems with stress and its emotional and

physical implication?") - 3 items - and social (e.g. "How many times do you have encountered problems interacting with your superior?") - 7 items.

Data analysis.

Data analysis was executed via SPSS version 24 by IBM. After data editing, a correlation analysis was implemented. Furthermore, the plugin PROCESS macro for mediation, moderation and conditional process analysis for SPSS by Hayes (2017) was executed.

The discrimination variable appeared to be statistically significant in both tests for normal distribution, Kolmogorov-Smirnov and Shapiro-Wilk. Data suggests no normal distribution of the discrimination variable. Therefore, Spearman correlations were executed.

Before executing the mediation analyses, several tests were run in order to verify its requirements: In the first step, all variables for the mediation analyses were visually examined in scatterplots - after LOESS smoothing. They appeared to be approximately linear. Secondly, the values of the Durbin-Watson statistics all indicated no auto-correlation for each type of barrier. Consequently, this speaks in favor of the independence of residues. In the third step, homoscedasticity of residues was conducted for each type of barrier separately. Visual examination of the scatterplots indicated homoscedasticity. Lastly, the normal distribution of residues was examined via the Shapiro-Wilk test. All residues were non-significant. Therefore, all needed requirements were met and mediation analyses could be run.

Results

Demographics. Fifty-three students and employees on the autism spectrum participated. Forty-two (79.20%) stated they had received an autism spectrum diagnosis from a professional and eleven (20.80%) had not. Age ranged from 18 to 59 years ($M_{\text{age}} = 36.57$; $SD_{\text{age}} = 10.73$). Nine participants (17.00%) were permanently and 22 (41.50%) temporary employed, while 22 (41.50%) were currently unemployed. Their current positions were

categorized into student ($n=10$; 18.90%), part-time employee ($n=9$; 17.00%), full-time employee ($n=19$; 35.80%), freelancer ($n=3$; 5.70%) and unemployed ($n=12$; 22.60%). Current employment work field distributions according to KldB (Klassifikation der Berufe; classifications of occupations; Bundesagentur für Arbeit, 2011) are shown in table 1.

Discrimination. All bivariate correlation tables are shown in table 2. Discrimination correlated statistically significant with social ($r_s(53) = .34, p = .01$) and formality ($r_s(53) = .25, p = .02$) barriers. Data indicates moderate effects. No statistically significant correlations could be detected for job demand barriers ($r_s(53) = .04, p = .38$). Discrimination and employability did not correlate statistically significant ($r_s(53) = -.21, p = .06$).

Employability. Students and employees on the autism spectrum reported lower employability when more discrimination was perceived, however no statistical significance was reported ($r_s(53) = -.21, p = .06$). Formality ($r_s(53) = -.36, p < .01$) and job demand ($r_s(53) = -.39, p < .01$) barriers were reported higher when employability was perceived as low. Data indicates moderate effects for formality and job demand barriers and self-perceived employability. Social barriers did not correlate significantly with employability ($r_s(53) = -.04, p = .39$).

Barriers. Barriers were split in three different categories, being social, formality and job demand. For each category a separate correlation analysis was executed. Students and employees on the autism spectrum reported significantly higher correlations for social and formality barriers when discrimination was also perceived as high, moderate effects can be reported. Moreover, formality barriers ($r_s(53) = -.36, p < .01$) and job demand barriers ($r_s(53) = -.39, p < .01$) were both significantly reported as high when employability was perceived as low. Formality barriers were also stated as higher when job demand ($r_s(53) = .59, p < .01$) or social ($r_s(53) = .68, p < .01$) barriers were perceived as high. Individuals on the autism spectrum

stated that social barriers were perceived as high when job demand barriers were disadvantageous ($r_s(53) = .38, p < .01$).

Mediation. No mediation by discrimination could be found as all bootstrap confidence intervals of indirect effects included 0. With this, discrimination could not predict employability. Data indicates that the discrimination variable is not a superior variable that mediates barriers or employability. Results are shown in table 3.

Discussion

Employing and sustaining individuals on the autism spectrum.

The purpose of this study was to reveal perceived barriers, such as problems in communication, job-related strain or during the adjustment phases. These significantly correlate with discrimination and employability, and therefore can hinder employees or students with high qualifications for the job to apply for it or stay in the company. Results indicated that discrimination significantly correlates with social and formality barriers (H3). A possible explanation for this result might be that social barriers contained social interaction problems, which are often associated with autism. Thus, these findings can be transferred into an individuals' everyday work experience: Due to previously experienced difficulties with colleagues, superiors or customers on the social level, it is conceivable that an individual on the autism spectrum perceives formality barriers as discriminatory against them. These formality barriers may include organizational structures or established protocols for interacting with colleagues, and they were typically created and shaped by neurotypical superiors who did not experience, or indeed intend, them as barriers in the first place. However, to the autistic employee they can appear overly complex and opaque. These are systemic barriers as identified by the social model of disability (Woods, 2017), preventing the autistic employee's full participation and integration and potentially fostering negative attitudes towards the individual.

The observed coherence of perceived discrimination and formality barriers supports this suggestion

Previous negative experiences with the formal application process might also keep an individual on the autism spectrum from applying for a certain job. Therefore, it is hardly surprising that the link from formality barriers to employability (H1) can also be traced back partly to participants having experienced highly non-transparent and complex application processes, in which they were rejected more frequently than neurotypical individuals - who had to undergo the same process - but faced less denials due to less barriers (Magrin, Marini, & Nicolotti, 2019). Another perspective might be the clinical characteristics due to problems with the familiarization with new work-related patterns in the adjustment phase and difficulties in the application process.

In line with previous expectations (H1), employability was also perceived as significantly lower when job demand barriers were reported as high. Possible reasons for this outcome might be that work strain can be linked to self-efficacy due to former experiences. In the study of Dacre Pool and Qualter (2013) emotional self-efficacy acted as predictor to employability which might explain the relationship found in this study between self-perceived employability and job demand barriers.

Unexpectedly, discrimination and employability (H2) did not seem to have a significant coherence. These findings indicate that discrimination can be rather observed as an effect caused by person-to-person contact and epitomizes a personal trait, rather than having a direct influence on employability. Discrimination did also not indicate a relation to job demand barriers (H3). This might be caused by the same reason - time management, multitasking or other expected work patterns are more associated with work itself rather than with individuals themselves. Hence, job-related demands and barriers seemed less likely to be apprehended as a facet of discrimination. Data also indicates that perceived social barriers and self-perceived

employability (H1) did not show a significant coherence. This might allude to social barriers being not internalized as a trait by individuals on the autism spectrum themselves; instead existing communication and interaction problems might be externalized to the specific experience made with a specific work environment which can differ with a change of job. Self-perceived employability contained internalized skills and abilities that would be demanded on the job market for the specific work an individual on the spectrum favored to or already performed. These findings indicate that individuals on the spectrum reflected on possible social barriers in their choice of employment.

Formality barriers were rated as crucial to be diminished and therefore enable individuals on the spectrum improved chances on the job market. With decreasing formality barriers to employment the employability of that specific issue would rise and as a result discrimination might abate and possibly cease. Rosqvist and Keisu (2012) argue that once formality and social barriers were to be diminished, social and opportunistic equality can be established.

Discrimination did not mediate the relationship between any type of barriers and employability (H4). Therefore, it cannot be assumed that discrimination acts as superior construct between self-perceived employability and barriers. It occurs that discrimination has a stronger connection to barriers - especially social and formality - than employability, which could indicate the necessity to diminish and remove these barriers first in order to provide an equal work environment. Nevertheless, it is also possible that these barriers are apprehended as part of the discrimination aspect itself: Individuals on the autism spectrum might experience especially social and formality barriers as discriminating because they were established by neurotypical individuals who did not perceive these as barriers. This is a manifestation of the double empathy problem which suggests that when people with very different experiences of the world interact with one another, they will struggle to empathize with each other (Milton,

2012). The possibility of overlapping or respectively mutually depending constructs cannot be excluded. Another arguable point might be the motivation to change work structures which might lead to staff conflicts by the employers' point of view (Fraser et al., 2010; Rao et al., 2010).

Implications for Future Research.

Further steps will be needed to achieve non-discriminatory attitudes and behaviors toward individuals on the autism spectrum and implement found theoretical approaches by reducing barriers to employment into realistic work contexts. But with that possible new problems might arise: For example, the needed exposure of diagnosis which might be considered a privacy invasion. This might result in the employee having to face fears of stigmatization. However, the exposure of diagnosis does not appear to be a fair alternative regarding an equal treatment, even though it appears to be the easiest way to address the problem directly and overcome barriers and misunderstandings or prejudices. Related studies (Fraser et al., 2010; Vornholt et al., 2013) found that previous experiences with employees with disabilities could reduce employers' prejudices and attitudes. Ozawa and Yaeda (2007) found that comprehensive information on a specific disability, like psychoeducation, could already reduce possible fears and attitudes which could ultimately lead to improved opportunities on the labor market. Not being able to understand another person's feelings and thoughts while experiencing unanticipated behavior of a new worker might lead to fear, a negative first impression on both sides (Sasson & Morrison, 2019), and the inadvertent desire to leave the situation. A toolkit that provides specific information on how to improve workplaces (e.g. providing a structured daily routine), tasks (e.g. supplying balanced repetitive and varied tasks) and the occupational environment (e.g. preventing or keeping sensory distractions at a minimum) for individuals on the autism spectrum might help improve the convergence of different groups of individuals. According to Hagner and Cooney (2005) clear, direct

communication, as well as the reduction of unstructured time were experienced as successful supervision strategies. Even though this might seem to be a challenging undertaking at first, it promises to be worthwhile with committed and motivated employees.

Rashid, Hodgetts and Nicholas (2017) proposed that pre-employment training and work-related experiences and exposure can be productive strategies in order to raise the chance of employment on the job market for individuals on the autism spectrum, as well as prepare them for their imminent professional life. (Rashid et al., 2017) raise another issue of discrimination of people with developmental conditions:— the practice of employing individuals as volunteers whilst neurotypical colleagues doing the same work are paid. Therefore, the inclusion of individuals on the autism spectrum becomes crucial, as well as fair behavior towards and the termination of discrimination against them.

Sansosti and Sansosti (2012) reported in their study on the inclusion in schools of students on the autism spectrum that there cannot be a generalized one size fits all guide or treatment method to include every single individual. Rather, a tailored approach aligned to the specific needs of the individual is usually proposed (Flower, Hedley, Spoor, & Dissanayake, 2019; e.g. Sansosti & Sansosti, 2012). These guides could focus on the integration on the workplace and diminish potential barriers.

Another point that needs to be addressed is to consider co-workers' and employers' attitudes and alleviate their fears by raising their autism awareness. Although many national laws already exist, such as the Allgemeines Gleichbehandlungsgesetz (General Equal Treatment Act, Antidiskriminierungsstelle des Bundes, 2013) of Germany, discrimination along with barriers and low employment rates of individuals on the autism spectrum remains actively and passively in our society (Cameto, 2003; Chen et al., 2015; World Health Organization, 2011). This strongly suggests that the problem cannot be addressed by policy or

law alone, but that it is a matter of changing the habits and mindsets of those making decisions as part of their professional practice.

Jacob et al. (2015) explored costs and benefits for companies and society regarding the employment of individuals with autism from the perspective of employers. They found that once individuals on the spectrum were employed, a statistically significant decrease of social benefit costs could be reported. Indeed, Rogge & Janssen (2019) put the cost of supporting an unemployed autistic adult (with no learning difficulties) at £1m.

Furthermore, employers could benefit from abilities and strengths employees on the spectrum can contribute, such as attention to detail, their concentration ability and reliability, honesty, loyalty, working longer hours and punctuality (Scott et al., 2017). Jacob et al. (2015) warned that employing individuals on the spectrum should not just be an act of including a disabled person, but motivated by a strength-based view of autism that considers the economic and societal benefits.

Conclusions.

In this paper, the importance of barriers to employment for autistic people, and some possible ways to overcome these were found and offered. However, future research will be needed to address and create specific guides and strategies to help individuals on the autism spectrum to obtain and sustain employment without having to face discrimination, stereotypes and prejudices through attitudes or barriers. A change of attitudes toward employees on the employer's side can often be accomplished through psychoeducational information and experiences of employing individuals on the autism spectrum (e.g. Ozawa, Kikuchi, & Yaeda, 2016; Ozawa & Yaeda, 2007; Vornholt et al., 2013). A review of recruitment practices as well as workplace structures and social customs is necessary to avoid unintended systemic barriers. The burden of doing this should lie with employers (Woods, 2017) and not be reliant on advocacy by autistic people. Finally a focus on strengths (Ripamonti, 2016) instead of deficits

or shortcomings should be reinforced, especially when the benefits of employing individuals on the autism spectrum seem to clearly prevail the costs (Jacob et al., 2015); Scott et al. 2017). Otherwise employers will risk losing out on the talents, work ethic and alternative perspectives (Hernandez et al., 2007) of autistic employees.

Limitations.

Due to the following limitations, this study's results should be carefully interpreted: Participants were recruited via online platforms and may therefore only include a certain part of the target group which led to a non-probabilistic sampling. With this in mind, results may not be suitable to be generalized. Also, used data only focused on German-speaking individuals on the autism spectrum. However, different results in other countries are conceivable due to diverse experiences and economic infrastructures.

References

- Allen, M., Coney, K (2018). What Happens Next? A report on the first destinations of 2016 disabled graduates. The Association of Graduate Careers Advisors. Retrieved from: <https://www.agcas.org.uk/Latest/what-happens-next-2018>
- Allport, G. W. (1954). *The Nature of Prejudice*. Oxford, UK: Addison-Wesley.
- Andersson, J., Luthra, R., Hurtig, P., & Tideman, M. (2015). Employer attitudes toward hiring persons with disabilities: A vignette study in Sweden. *Journal of Vocational Rehabilitation, 43*(1), 41-50. doi:10.3233/JVR-150753
- Antidiskriminierungsstelle des Bundes. (2013). *Allgemeines Gleichbehandlungsgesetz*. Retrieved August 14, 2019 from https://www.antidiskriminierungsstelle.de/SharedDocs/Downloads/DE/publikationen/AGG/agg_gleichbehandlungsgesetz.pdf?__blob=publicationFile
- Booth, J. (2016). *Autism Equality in the Workplace : Removing Barriers and Challenging Discrimination*. Philadelphia, PA: Jessica Kingsley Publishers.
- Bundesagentur für Arbeit. (2011). *Klassifikation der Berufe 2010*. *Bundesagentur für Arbeit*. Retrieved August 14, 2019 from <https://www.klassifikationsserver.de/klassService/jsp/common/url.jsf?variant=kldb2010>
- Cai, R. Y., & Richdale, A. L. (2016). Educational experiences and needs of higher education students with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 46*(1), 31-41.
- Cameto, R. (2003). Findings from the national longitudinal transition study-2 (NLTS2): collecting and utilizing postschool outcome data to improve transition programs and services at the national, state and local levels. *Capacity Building Institute, Division of Career Development and Transition, Council for Exceptional Children*.

- Chen, J. L., Leader, G., Sung, C., & Leahy, M. (2015). Trends in Employment for Individuals with Autism Spectrum Disorder: a Review of the Research Literature. *Review Journal of Autism and Developmental Disorders*, 2(2), 115-127. doi:10.1007/s40489-014-0041-6
- Corrigan, P. W., & Penn, D. L. (1999). Lessons from social psychology on discrediting psychiatric stigma. *American Psychologist*, 1(S), 2-17. doi:10.1037/2376-6972.1.S.2
- D'Cruz, A.-M., Ragozzino, M. E., Mosconi, M. W., Shrestha, S., Cook, E. H., & Sweeney, J. A. (2013). Reduced behavioral flexibility in autism spectrum disorders. *Neuropsychology*, 27(2), 152.
- Dacre Pool, L., & Qualter, P. (2013). Emotional self-efficacy, graduate employability, and career satisfaction: Testing the associations. *Australian Journal of Psychology*, 65(4), 214-223. doi:10.1111/ajpy.12023
- Dovidio, J. F., Hewstone, M., Glick, P., & Esses, V. M. (2010). Prejudice, Stereotyping and Discrimination: Theoretical and Empirical Overview. In *The SAGE Handbook of Prejudice, Stereotyping and Discrimination*. doi:10.4135/9781446200919
- Duemmler, K., & Nagel, A.-K. (2013). Duemmler, Kerstin; Nagel, Alexander-Kenneth: Governing Religious Diversity: Top-down and bottom-up initiatives in Germany and Switzerland. *Integrative Psychological & Behavioral Science*, 47(2), 265-283. doi:10.1007/s12124-012-9226-7
- Fiske, S. T., & Lee, T. L. (2008). Stereotypes and prejudice create workplace discrimination. In A. P. Brief (Ed.), *Diversity at work*. (pp. 13-52). New York, NY: Cambridge University Press.
- Flower, R. L., Hedley, D., Spoor, J. R., & Dissanayake, C. (2019). An alternative pathway to employment for autistic job-seekers: a case study of a training and assessment

- program targeted to autistic job candidates. *Journal of Vocational Education & Training*, 71(3), 407-428. doi:10.1080/13636820.2019.1636846
- Fraser, R. T., Johnson, K., Hebert, J., Ajzen, I., Copeland, J., Brown, P., & Chan, F. (2010). Understanding employers' hiring intentions in relation to qualified workers with disabilities: Preliminary findings. *Journal of Occupational Rehabilitation*, 20(4), 420-426. doi:10.1007/s10926-009-9220-1
- Hagner, D., & Cooney, B. F. (2005). "I Do That for Everybody": Supervising Employees With Autism. *Focus on Autism and Other Developmental Disabilities*, 20(2), 91-97. doi:10.1177/10883576050200020501
- Hayes, A. F. (2017). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: Guilford Publications.
- Hernandez, B., Cometa, M. J., Velcoff, J., Rosen, J., Schober, D., & Luna, R. D. (2007). Perspectives of people with disabilities on employment, vocational rehabilitation, and the Ticket to Work program. *Journal of Vocational Rehabilitation*, 27(3), 191-201.
- Hipes, C., Lucas, J., Phelan, J. C., & White, R. C. (2016). The stigma of mental illness in the labor market. *Social Science Research*, 56, 16-25. doi:10.1016/j.ssresearch.2015.12.001
- Jacob, A., Scott, M., Falkmer, M., & Falkmer, T. (2015). The Costs and Benefits of Employing an Adult with Autism Spectrum Disorder: A Systematic Review. *PLoS One*, 10(10), e0139896. doi:10.1371/journal.pone.0139896
- Jacquet, M., & D'Amico, L. (2016). Religious diversity and inclusion: Policy and accommodation practices in British Columbia's secular school system. *Canadian Journal of Education*, 39(2), 1-25.

- Johnson, T. D., & Joshi, A. (2014). Disclosure on the spectrum: Understanding disclosure among employees on the autism spectrum. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 7(2), 278-281. doi:10.1111/iops.12149
- Ju, S., Roberts, E., & Zhang, D. (2013). Employer attitudes toward workers with disabilities: A review of research in the past decade. *Journal of Vocational Rehabilitation*, 38(2), 113-123.
- Khan, N., Korac-Kakabadse, N., Skouloudis, A., & Dimopoulos, A. (2019). Diversity in the workplace: An overview of disability employment disclosures among UK firms. *Corporate Social Responsibility & Environmental Management*, 26(1), 170-185. doi:10.1002/csr.1669
- Kirk-Brown, A. K., Van Dijk, P. A., Simmons, R. D., Bourne, M. P., & Cooper, B. K. (2014). Disclosure of diagnosis of multiple sclerosis in the workplace positively affects employment status and job tenure. *Multiple Sclerosis*, 20(7), 871-876. doi:10.1177/1352458513513967
- Laurence, J., Schmid, K., & Hewstone, M. (2018). Ethnic Diversity, Inter-group Attitudes and Countervailing Pathways of Positive and Negative Inter-group Contact: An Analysis Across Workplaces and Neighbourhoods. *Social Indicators Research*, 136(2), 719-749. doi:10.1007/s11205-017-1570-z
- Lighthouse International. (2010). *Perfectly Able: How to Attract and Hire Talented People With Disabilities* (J. Hasse Ed.). New York, NY: American Management Association (AMACOM).
- Lorenz, T., Frischling, C., Cuadros, R., & Heinitz, K. (2016). Autism and overcoming job barriers: Comparing job-related barriers and possible solutions in and outside of autism-specific employment. *PLoS One*, 11(1).

- Lorenz, T., & Heinitz, K. (2014). Aspergers--different, not less: occupational strengths and job interests of individuals with Asperger's Syndrome. *PLoS One*, *9*(6), e100358-e100358. doi:10.1371/journal.pone.0100358
- Magrin, M. E., Marini, E., & Nicolotti, M. (2019). Employability of Disabled Graduates: Resources for a Sustainable Employment. *Sustainability*, *11*(6), 1542.
- McQuade, D. V. (2002). Negative Social Perception of Hypothetical Workers with Rheumatoid Arthritis. *Journal of Behavioral Medicine*, *25*(3), 205.
- Milton, D.E.M. (2012). On the ontological status of autism: the 'double empathy problem'. *Disability & Society*, *27*(6), 883-887, doi:10.1080/09687599.2012.710008
- Ministries of Health and Education. (2008). *New Zealand Autism Spectrum Disorder Guideline*. Wellington: Ministry of Health Retrieved August 13, 2019 from <http://eprints.bournemouth.ac.uk/9862/1/NZ-Autism-Spectrum-Guidelines-MOH-NZ.pdf>
- Ministries of Health and Education. (2016). *New Zealand Autism Spectrum Disorder Guideline*. Wellington: Ministry of Health Retrieved August 13, 2019 from https://www.health.govt.nz/system/files/documents/publications/nz-asd-guideline-aug16v2_0.pdf
- National Autistic Society (2016). The autism employment gap – Too much information in the workplace. Retrieved September 25, 2019 from: <https://www.autism.org.uk/~media/nas/get-involved/tmi/tmi%20employment%20report%2024pp%20web.ashx?la=en-gb>
- Nota, L., Santilli, S., Ginevra, M. C., & Soresi, S. (2014). Employer Attitudes Towards the Work Inclusion of People With Disability. *Journal of Applied Research in Intellectual Disabilities*, *27*(6), 511-520. doi:10.1111/jar.12081

- Ozawa, A., Kikuchi, E., & Yaeda, J. (2016). Causal analysis of employer attitude formation toward employing individuals with psychiatric disabilities. *Journal of Vocational Rehabilitation, 44*(2), 201-212. doi:10.3233/JVR-150791
- Ozawa, A., & Yaeda, J. (2007). Employer attitudes toward employing persons with psychiatric disability in Japan. *Journal of Vocational Rehabilitation, 26*(2), 105-113.
- QuestBack (2019). UNIPARK Survey-Software, <http://www.unipark.de/en/survey-software/>
- Rao, D., Horton, R. A., Tsang, H. W. H., Shi, K., & Corrigan, P. W. (2010). Does individualism help explain differences in employers' stigmatizing attitudes toward disability across Chinese and American cities? *Rehabilitation Psychology, 55*(4), 351-359. doi:10.1037/a0021841
- Rashid, M., Hodgetts, S., & Nicholas, D. (2017). Building Employer Capacity to Support Meaningful Employment for Persons with Developmental Disabilities: A Grounded Theory Study of Employment Support Perspectives. *Journal of Autism and Developmental Disorders, 47*(11), 3510-3519. doi:10.1007/s10803-017-3267-1
- Ripamonti, L. (2016). Disability, Diversity, and Autism: Philosophical Perspectives on Health. *The New Bioethics: A Multidisciplinary Journal Of Biotechnology And The Body, 22*(1), 56-70. doi:10.1080/20502877.2016.1151256
- Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: psychometric properties of a new measure. *Psychiatry Research, 121*(1), 31-49. doi:10.1016/j.psychres.2003.08.008
- Rogge, N., & Janssen, J. (2019). The Economic Costs of Autism Spectrum Disorder: A Literature Review. *Journal of Autism and Developmental Disorders, 49*(7), 1573-3432. doi:10.1007/s10803-019-04014-z
- Rosqvist, H. B., & Keisu, B.-I. (2012). Adaptation or recognition of the autistic subject? Reimagining autistic work life: Deconstructing the notion of 'real jobs' in the Swedish

- autistic self-advocacy movement. *Journal of Vocational Rehabilitation*, 37(3), 203-212.
- Rothwell, A., Herbert, I., & Rothwell, F. (2008). Self-perceived employability: Construction and initial validation of a scale for university students. *Journal of Vocational Behavior*, 73(1), 1-12. doi:10.1016/j.jvb.2007.12.001
- Rothwell, A., Jewell, S., & Hardie, M. (2009). Self-perceived employability: Investigating the responses of post-graduate students. *Journal of Vocational Behavior*, 75(2), 152-161.
- Russinova, Z., Griffin, S., Bloch, P., Wewiorski, N. J., & Rosoklija, I. (2011). Workplace prejudice and discrimination toward individuals with mental illnesses. *Journal of Vocational Rehabilitation*, 35(3), 227-241.
- Sasson, N. J. & Morrison, K. E. (2019). First impressions of adults with autism improve with diagnostic disclosure and increased autism knowledge of peers. *Autism: the International Journal of Research and Practice*, 23(1), 50-59.
doi:10.1177/1362361317729526
- Scott M, Jacob A, Hendrie D, Parsons R, Girdler S, Falkmer T, Falkmer M. (2017). Employers' perception of the costs and the benefits of hiring individuals with autism spectrum disorder in open employment in Australia. *PLoS ONE* 12(5): e0177607.
doi:10.1371/journal.pone.0177607
- Sansosti, J. M., & Sansosti, F. J. (2012). Inclusion for Students with High-Functioning Autism Spectrum Disorders: Definitions and Decision Making. *Psychology in the Schools*, 49(10), 917-931. doi:10.1002/pits.21652
- Stringer, D. M. (1995). The role of women in workplace diversity consulting. *Journal of Organizational Change Management*, 8(1), 44. doi:10.1108/09534819510077155

- Unger, D. D. (2002). Employers' Attitudes Toward Persons with Disabilities in the Workforce: Myths or Realities? *Focus on Autism and Other Developmental Disabilities, 17*(1), 2-10. doi:10.1177/108835760201700101
- United Nations. (2016). 10th anniversary of the adoption of Convention on the Rights of Persons with Disabilities. Retrieved August 12, 2019 from https://www.un.org/disabilities/documents/convention/convention_accessible_pdf.pdf
- Vornholt, K., Uitdewilligen, S., & Nijhuis, F. J. N. (2013). Factors affecting the acceptance of people with disabilities at work: A literature review. *Journal of Occupational Rehabilitation, 23*(4), 463-475. doi:10.1007/s10926-013-9426-0
- Vornholt, K., Villotti, P., Muschalla, B., Bauer, J., Colella, A., Zijlstra, F., Van Ruitenbeek, G., Uitdewilligen, S., & Corbière, M. (2018). Disability and employment – overview and highlights. *European Journal of Work and Organizational Psychology, 27*(1), 40-55. doi:10.1080/1359432X.2017.1387536
- West, E. A., Travers, J. C., Kemper, T. D., Liberty, L. M., Cote, D. L., McCollow, M. M., & Brusnahan, L. L. S. (2016). Racial and ethnic diversity of participants in research supporting evidence-based practices for learners with autism spectrum disorder. *The Journal of Special Education, 50*(3), 151-163. doi:10.1177/0022466916632495
- Woods, R. (2017). Exploring how the social model of disability can be re-invigorated for autism: in response to Jonathan Levitt, *Disability & Society, 32*(7), 1090-1095. doi:10.1080/09687599.2017.1328157
- World Health Organization. (2011). World Report on Disability. Retrieved August 13, 2019 from https://www.who.int/disabilities/world_report/2011/report.pdf
- World Health Organization. (2018). Autism spectrum disorders. Retrieved August 13, 2019 from <https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders>

Table 1

Current employment work field of individuals with autism

Classification according to KldB 2010 code	N	%
Natural sciences, geography and computer science	13	24.5
Economic sciences, media, arts and design	12	22.6
Natural sciences, geography and computer science	12	22.6
Business organization, accounting, law and administration	6	11.3
Transportation, logistics, protection and security	5	9.4
Construction, architecture, surveying, and building technology	3	5.7
Production of raw materials	1	1.9
Commercial services, retail, sales and distribution, hotels and tourism	1	1.9

Note. KldB = Klassifikation der Berufe (classification of occupations)

Table 2

Correlations

Variables	Discrimination	social barriers	formality barriers	job demand barriers	employability
Discrimination	1				
social barriers	.340** <i>p</i> = .006	1			
formality barriers	.273* <i>p</i> = .024	.684** <i>p</i> < .000	1		
job demand barriers	.044 <i>p</i> = .378	.383** <i>p</i> = .002	.588** <i>p</i> < .000	1	
employability	-.213 <i>p</i> = .062	-.040 <i>p</i> = .389	-.361 <i>p</i> = .004	-.388** <i>p</i> = .002	1

Note. Correlations shown in this table were tested one-sidedly.

*. Correlation is significant on the .05 niveau.

**. Correlation is significant on the .01 niveau.

Table 3

Mediation model results

Consequent								
Antecedent	M (DISCRIMINATION)			Y (EMPLOYABILITY)				
	Coeff.	p	95% CI	Coeff.	p	95% CI		
X_a (FORMALITY BARRIERS)	<i>a</i>	.30	.04	[.01, .59]	<i>c</i>	-.34	<.00	[-.55, -.12]
<i>M</i> (DISCRIMINATION)	-	-	-	-	<i>b</i>	-.03	.76	[-.23, .17]
indirect effect	-.01		[-.09, .06]					
	R ² = .0775			R ² = .1882				
	F (1, 51) = 4.29, p = .04			F (2, 50) = 5.79, p = .01				
Consequent								
Antecedent	M (DISCRIMINATION)			Y (EMPLOYABILITY)				
	Coeff.	p	95% CI	Coeff.	p	95% CI		
X_b (JOB DEMAND BARRIERS)	<i>b</i>	.04	.76	[-.20, .27]	<i>c</i>	-.28	<.00	[-.43, -.12]
<i>M</i> (DISCRIMINATION)	-	-	-	-	<i>b</i>	-.10	.27	[-.29, .08]
indirect effect	-.00		[-.05, .03]					
	R ² = .1295			R ² = .0322				
	F (1, 51) = 7.59, p = .01			F (2, 50) = .83, p = .44				
Consequent								
Antecedent	M (DISCRIMINATION)			Y (EMPLOYABILITY)				
	Coeff.	p	95% CI	Coeff.	p	95% CI		
X_c (SOCIAL BARRIERS)	<i>c</i>	.41	.01	[.11, .71]	<i>c</i>	-.08	.54	[-.33, .18]

<i>M</i> (DISCRIMINATION)	-	-	-	<i>b</i>	-.09	.41	[.32, .13]
indirect effect	-0.04						[-.17, .05]
					$R^2 = .1295$		$R^2 = .0322$
					$F(1, 51) = 7.59, p = .01$		$F(2, 50) = .83, p = .44$
