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# Educational Milieu at Universities: Implementation of Inclusive Methods in High School Studies

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## ABSTRACT

### BACKGROUND

The issue of implementing inclusive education is widely discussed in the academic community, as inclusive education meets the requirements of ensuring the right to education for all citizens. However, despite numerous theoretical proposals for developing an inclusive educational environment, creating a fair, inclusive space in practice has proven complicated. Research on inclusive education has covered chiefly primary and secondary schools, while inclusive education in higher education has received little attention. Therefore, the purpose of our study was to identify the problems of inclusive education in higher education from the perspective of the student community and to create recommendations for their solution.

### MATERIALS AND METHODS

The study used analytical and bibliographic, graphical, induction, deduction, analysis, synthesis, structuring, survey, statistical analysis and logical comparison methods.

### RESULTS

The results of the study revealed insufficient satisfaction of the needs of persons with disabilities in higher education institutions, a lack of understanding of the needs of persons with physiological characteristics by the student community, dissatisfaction with the learning environment among all students, the existence of a hostile communication atmosphere among students due to a sense of injustice and the spread of stigma among students with disabilities.

### CONCLUSION

Based on the principles of individualisation, differentiation and accessibility, practical recommendations were developed to improve the conditions for all students, avoiding stigmatisation of people with disabilities and improving communication and the learning environment.

**Keywords:** Inclusive pedagogy in universities, Student perspectives on disability inclusion, Stigma and fairness perceptions, Differentiated and individualised instruction, Universal design for learning

### Highlights

- Students with special needs expressed greater need for methodological and communication adaptations rather than just physical accommodations.
- Practical recommendations emphasize differentiation, individualisation, equity, and accessibility – including course flexibility, inclusive assessments, and universal design strategies.
- Highlights the need for teacher training, institutional reform, and low-cost, high-impact strategies tailored for diverse educational settings.

## Introduction

Inclusive education is an element of ensuring the right to education for all citizens who express a desire to learn and have limited opportunities due to physiological characteristics. Inclusive education is an integral part of modern society and a global phenomenon, as research in this area has a wide geographical spread.<sup>1</sup> However, since the adoption of the Salamanca Statement on Inclusion in Education in 1994 at a UNESCO conference, despite the support of 87% of participants, the issue has not made much progress,<sup>2</sup> as numerous theoretical approaches have had a low level of application in practice. Another aspect is the lack of unified quality requirements for inclusive education, which leads to insufficient provision of equitable conditions for the education of people needing inclusive measures.<sup>1,3</sup> The role of inclusive education in higher education and whether the level of inclusiveness meets the requirements of students with special needs also remain problematic.

## Literature Review

The importance of inclusive education in a developed society is undeniable, but it requires a lot of effort to achieve its goal.<sup>4</sup> After all, to implement inclusiveness in practice, it is necessary to create a learning space that meets the basic needs of students with different physiological capabilities without violating the basic principles of the educational process. That is, it is necessary to balance introducing adaptive methodological measures that would not violate the basic principles of education and facilitating the involvement of students with special needs in education on an equal footing with other students. That is why inclusive pedagogy aims to create fair and equal conditions to ensure a quality learning process for all students while providing appropriate opportunities for people with special needs.<sup>5</sup>

The issue of inclusive education is relevant and has been initiated by international organisations such as UNESCO, the UN, sustainable development, and human rights programmes.<sup>1</sup> However, the lack of explicit provisions and definitions has led to different approaches and methods of implementation. At the same time, many theoretical foundations of inclusive education have proven to be ineffective in practice and have not contributed to the adaptation of persons with disabilities.<sup>6</sup> Therefore, many studies are still focused on the practicality of inclusive education. To increase practicality, it is advisable to change the basic principle of the educational process from a “one-size-fits-all” system to an individual approach.<sup>7</sup> Such an individual approach, while differentiating the needs of different

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students, has a positive impact on inclusive education and education in general. After all, an individual approach helps to reveal students' talents and create the basis for better motivation to learn and assimilate new information. An individual approach requires more teacher effort, time, and flexibility in curricula and programmes.

Cooperation, co-learning, grouping, motivation and feedback are important for inclusive education. These aspects are important when implementing the theoretical provisions in practice. Finkelstein et al.<sup>8</sup> describe five factors for overcoming classroom barriers: teamwork, organisational, instructional, behavioural practices, and measuring progress. Additional involvement of psychologists, parents, physiotherapists, and speech therapists can create a barrier-free space. This practical approach requires teachers to work hard by creating individualised curricula and introducing differentiated learning. Differentiated learning, unlike individualised learning, includes the exact requirements for all students. It offers different ways to achieve them, namely modified learning processes to achieve educational goals equal for all.<sup>9</sup> This approach is often contrasted with Universal Design for Learning (UDL), which seeks to design curricula accessible to all students from the outset, and with Differentiated Instruction (DI), which adapts teaching to address the diverse needs of learners.<sup>9</sup>

Modification is the simplification of the content of a topic or academic achievement according to the learner's capabilities.<sup>2</sup> For example, for students with dyslexia, it is advisable to simplify the presentation of educational material by reducing the amount of reading and writing, instead using an oral form of learning that is better understood. Thus, modification is not so much about changing the content as the teaching methodology.<sup>10</sup> In addition to the methodology, teachers can adjust the number of tasks for independent or home study, adapt the time frame for different tests, and use support materials.<sup>11</sup>

An important factor is student motivation, which requires considerable effort. Motivation is influenced by the accessibility of learning material and the success of learning. An individual, differentiated approach, content modification, volume, timeframe, and teaching methodology ensure accessibility of materials. Instead, success is determined by assessment and feedback. For students with special needs, typical academic assessment methods negatively impact them, as they often do not show gradual progress. That is why the assessment should also be modified, for example, according to the capabilities of the class, group, or personal achievement analysis.<sup>12</sup>

One of the successful components of inclusive education is the professional development of teachers by evidence-based inclusive practices.<sup>13</sup> Teacher training is insufficient mainly because the transition from specialised to inclusive education is relatively recent and has not been implemented equally in all countries. Studies have shown that teachers, even those with extensive teaching experience, are confused when

working in inclusive classrooms.<sup>14</sup> Thus, training in inclusive practices should be included in all teacher education levels, and universities should become a centre for research and development of inclusive education.<sup>15</sup>

Inclusive education is characterised by good predictions for the social integration of people with disabilities and professional employment in adulthood.<sup>16,17</sup> Thus, after graduating from inclusive classes, students desire to pursue higher education and a profession. While many studies have focused on inclusive education in schools, there is a question about developing inclusive pedagogy in higher education. The authors argue that the issue of inclusive pedagogy in higher education is insufficiently studied, does not have a specific goal, and is only open for implementation.<sup>5</sup> At the same time, current reviews do reveal an increase in interest in inclusive education in higher education in recent years. However, such studies are few and far between and are instead in the developmental stage.<sup>1</sup> Another aspect is the research focus on teacher surveys.<sup>18</sup> However, to build a compelling, inclusive landscape in higher education institutions, it is crucial to understand the characteristics of this landscape from the student's perspective. That is why our research focused on studying the quality of inclusive education in higher education institutions from students' perspectives.

Our study aimed to identify the problems of inclusive education in higher education institutions from the point of view of the student community and to create recommendations for their solution.

## Materials and Methods

The main materials for the study were selected industry publications indexed in leading scientific databases (Web of Science, Scopus), as well as statistics from official sources. The sample period was 2019–2025.

Search engines such as Google Scholar were used to effectively search for information during the study. Queries were formulated by selecting relevant keywords, and clarifying questions or commands were used to narrow down the search results. For a more in-depth analysis, results from various sources were reviewed, with a focus on high-quality information.

The criteria for including and excluding publications were spatial and temporal indicators and the level of reliability of the information. The criteria for assessing the quality of sources were the relevance and objectivity of the publication, the completeness of the coverage of the topic, and the authority.

An analysis of information sources was conducted: the authority and reliability of the source were assessed; attention was paid to the relevance of the information: whether it was still relevant. In addition, an assessment of research methods was conducted, which involved a critical approach to the methods used to obtain the information.

The data extraction system included:

- Data collection, pre-processing: sentences and words are selected, normalization and stop word removal are performed.

- Selection of entities that are significant in the context of the study.
- Extraction of relationships between selected entities.
- Structuring of information.

A standardized and independent review was also used. The screening process involves double-blind peer review by two independent reviewers, whose names are not disclosed to the authors. In addition, the names of the authors of the manuscript are concealed from the reviewers. Reviewers evaluate the quality of the manuscript, its research methodology, rationale and conclusions, academic writing level and style. In addition, they are able to identify unethical behavior or plagiarism.

To determine the student community's assessment of the learning environment and the level of inclusiveness, an anonymous survey was conducted among 1,260 students at five higher education institutions from 2023 to 2024 year. The survey questions were assessed by a university expert group for content and construct validity. The reliability of the online self-report was tested by randomly repeating the survey after 2 months among respondents. The survey link was sent to 1,561 students. The link was opened by 1,498 students, of whom 1,260 completed the survey (84.11%). We used stratified sample to conduct survey in the study. The frequency weight was defined by STATA.12. In order to be transparent of sampling procedure, we created a STROBE-like flow diagram (Appendix 1) that explained the enrolment flow: 1,561 invitations were sent, 1,498 students opened the link and 1,260 students completed the survey fully, forming the final analytic sample. Faculty, year of study, and gender stratification were performed according to the proportionate representation of the student population in five universities. These strata distributions were used to calculate frequency weights in STATA.12 adjusted by non-response. The recruitment was done through official university mailing lists and disability-support offices and supplementary announcements were done through social media. This combining strategy maximised coverage but also created the possibility of self-selection bias, which we admit. The survey was conducted in compliance with the ethical requirements of the Declaration of Helsinki and current Ukrainian standards in the field of academic integrity. The survey was voluntary and conducted online using a Google form for Taras Shevchenko National University of Kyiv, V. N. Karazin National University of Kharkiv, Ethics Commission of I. I. Mechnikov National University of Odessa, Oles Honchar National University of Dnipro. Before taking part in the survey, students read the information about the research. If students agreed to take part in the survey they had signed the informal consent by checking an appropriate box. Personal data were stored on electronic media with limited access and were destroyed after the study was completed. All respondents signed an informed consent to participate in the survey and publish the results. An example of

a survey questionnaire is provided in Appedix 2. The reliability of the survey scale was confirmed by a Cronbach's alpha level of 0.721. The survey results were processed in Excel and STATA.12 and presented as bar charts. Along with descriptive statistics and analysis of  $\chi^2$ , we also conducted multivariate logistic regression analysis of the main results, such as dissatisfaction with study conditions, perceived inequality, avoidance by peers, and intention to drop out. To minimize the possible confounding effect, adjusted odds ratios (aORs) with 95% confidence intervals were computed by controlling gender, year of study, and type of disability. Regression assumptions (independence, the lack of multicollinearity, linearity of continuous variables on the logit) had been verified and satisfied beforehand. Listwise deletion was mostly used to deal with missing data; sensitivity analysis with imputed databases gave similar findings. Complete regression results are given in Appendix 3: Table A, B. The sample characteristics were demonstrated in Appendix 4. The study used the analytical and bibliographic methods to analyse the literature, methods of induction, deduction, analysis, synthesis, structuring, survey, logical comparison, statistical analysis ( $\chi^2$  test) and graphical analysis to identify the basic principles of inclusive education and create practical recommendations for improving the quality of inclusive education (Appendix 5). The selection of literature was based on the search for the results of scientific research in recent years according to the criteria of disability in higher education, stigmatization of people with special needs in universities, adaptation of higher education institutions for students with disabilities, inclusive space in higher education, and students' views on the inclusion of higher education. The exclusion criteria for the bibliographic review were publications before 2018, low relevant studies and researchers which didn't contain inclusive criteria. The survey results, including open-ended questions, were processed by 3 researchers in order to avoid bias errors. Missing and incompleted answers were analysed by 3 researchers in order to determine whether to consider them as negative answer or not to consider them at all.

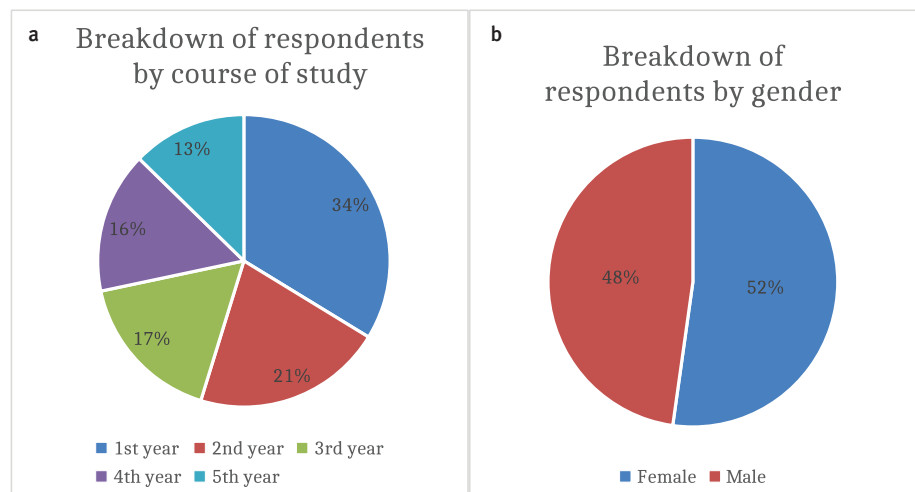
## Results

As mentioned above, a survey was conducted among students of 5 higher education institutions to identify the needs and challenges faced by these institutions in creating an inclusive educational environment. Of the 1260 students surveyed, 129 (10,2%) had disabilities related to diseases of the musculoskeletal, nervous, and cardiovascular systems. Frequency weights were calculated based on the proportional representation of students across three key strata: faculty (humanities, natural sciences, technical), year of study (1–4), and gender. The initial weights reflect the size of each stratum in the general population, after which adjustments were made for non-response by reducing the weights for underrepresented groups and increasing those for groups with higher response rates. All calculations were performed in STATA using the SVY option,

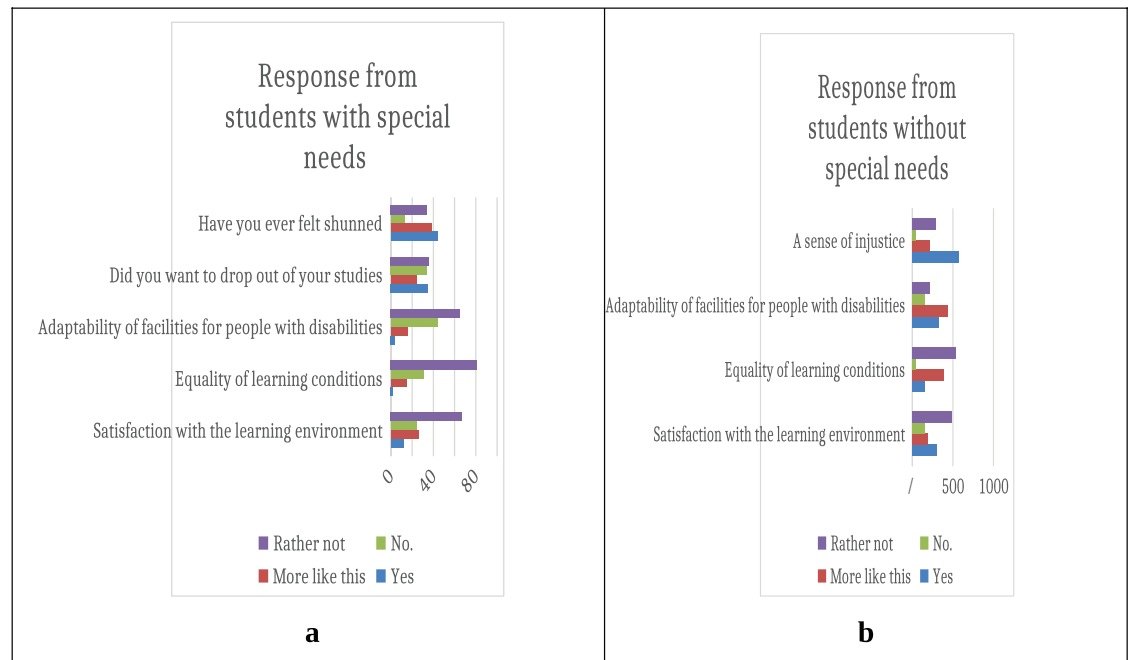
which allows for the complex survey design to be taken into account when estimating the chi-square and constructing multivariate logistic regression models, as well as design-adjusted standard errors to improve the accuracy of coefficient interpretation. Response rates ranged from 78% in technical faculties to 88% in humanities, and from 80% to 87% across higher education institutions. For transparency, a table comparing weighted and unweighted estimates of key variables is presented, which showed minimal deviations (within 2–3%), confirming the validity of the method used. The breakdown by gender and course of study is shown in Figure 1a, b.

As shown in Figure 1, first-year students expressed the most excellent willingness to take the survey,

which indicates that first-year students are highly motivated to participate in changing approaches to education. Among students with disabilities, the distribution by year of study did not show any difference between different courses of study, favouring the desire of students with disabilities to influence the development of inclusive education. Among students with special needs, 27 (20,9%) of the respondents did not indicate the cause of their disability, which indicates the vulnerability of this category of students and emphasises the importance of the ethical component in their education and communication. The main results of the survey are presented in Figure 2. For brevity and clarity, the results for students with and without



**Fig 1 | Breakdown of respondents by gender (a) and year of study (b)**  
Source: Created by the author based on a questionnaire.



**Fig 2 | Survey responses of students regarding inclusiveness in higher education: (a) students with special needs; (b) students without special needs**  
Source: Created by the author based on a questionnaire.

special needs were combined into a single comparative figure (Figure 2a,b).

As can be seen from Figure 2, all students were highly dissatisfied with their learning environment: 56,7% of students without special needs and 70,6% of students with disabilities ( $\chi^2 = 9,14; p < 0,01; \text{Cramers } V = 0,08$ ). Similar results were observed about the equality of learning conditions. Moreover, among students without disabilities, 51,7% of respondents considered the study conditions to be unequal, while among students with disabilities, 86,8% considered the study conditions to be unequal ( $\chi^2 = 76,37; p < 0,01; \text{Cramers } V = 0,21$ ). Thus, the level of dissatisfaction with learning conditions and the feeling of inequality was more pronounced in the group of students with disabilities, which indicates a low level of satisfaction with the need for inclusive education. However, it should be noted that among students without special needs, more than half of the respondents also expressed dissatisfaction with unequal learning conditions. Thus, the education system needs to be improved at the level of inclusiveness and the basic level.

Regarding the conditions that would ensure that people with disabilities can study without hindrance, our survey found that one-third of students, 32,6% consider their higher education institutions insufficiently adapted for people with special needs. At the same time, among students with disabilities, 84,5% considered their higher education institutions to be little or not at all adapted for inclusive education ( $\chi^2 = 132,31; p < 0,01; \text{Cramers } V = 0,32$ ). This divergence of views indicates a lack of understanding of the needs of people with disabilities in the student community. After all, the student community's suggestions were mainly related to facilitating movement through ramps and lifts and increasing the distance between tables in classrooms. At the same time, students with disabilities expressed a desire to modify timetables, methodological approaches, forms of education, and means of communication. Thus, students with special needs in inclusive education do not need as much physical as methodological and communication adaptation, creating a favourable emotional learning environment.

The low level of social adaptation is evidenced by the answer to the question of students with disabilities

about their avoidance by other students. After all, 63,6% of students with disabilities felt that they were avoided versus 14,9% students without disabilities ( $\chi^2 = 171,3; p < 0,01; \text{Cramers } V = 0,37$ ). One of the reasons for avoiding students with disabilities may be a sense of injustice among students without disabilities, who in 69,6% of cases felt that they were not treated fairly compared to students with disabilities, as students with disabilities received privileges that led to a violation of fair competition between all students. While 82,2% students with disabilities felt unfair treatment ( $\chi^2 = 8,89; p < 0,01; \text{Cramers } V = 0,08$ ), as a result, students avoided communicating with colleagues with special needs, which contributed to the stigmatisation of people with disabilities. Overall, the numerical findings consistently show higher dissatisfaction, stronger perceptions of inequality, and increased risk of social avoidance and dropout among students with disabilities compared to their peers. These statistical results form the empirical basis for interpreting the broader implications of inclusiveness and for developing practical recommendations (Table 1).

Thus, lack of understanding of students with disabilities' needs among the student community has consequences, including conflicts in communication and the spread of stigmatisation of students with disabilities. The multivariable logistic regression analyses supported these findings (Appendix 5). After adjusting for gender, year of study, and type of disability, students with disabilities were more than twice as likely to report an intention to drop out compared to their peers without disabilities (aOR=2.34, 95% CI 1.62–3.39). Perceived unfair treatment also independently predicted dropout intention (aOR=1.89, 95% CI 1.40–2.56). Furthermore, students with disabilities had over three times the odds of perceiving study conditions as unequal (aOR=3.12, 95% CI 2.25–4.32). These results confirm that dissatisfaction, stigma, and perceived inequality remain significant predictors of disengagement even when controlling for potential confounders.

To ensure the completeness of the results, we additionally provided the full parameters of the regression models for key outcomes. In particular, dissatisfaction with learning conditions among students with disabilities was associated with increased odds (aOR = 2.11; 95% CI: 1.48–3.02), while perceived inequality had an even stronger association (aOR = 3.12; 95% CI: 2.25–4.32). The feeling of avoidance by peers showed a significant effect (aOR = 2.67; 95% CI: 1.89–3.79), and the intention to drop out of school was the most pronounced (aOR = 2.34; 95% CI: 1.62–3.39). Model fit indices (Hosmer–Lemeshow  $p > 0.10$ ) and diagnostic indicators confirmed the adequacy of the specification. Additionally, we conducted a mediation analysis, which found that perceived inequality partially mediates the effect of disability status on the intention to drop out (path coefficient = 0.41,  $p < 0.01$ ). This indicates that the perception of unfair conditions is a critical risk factor for academic expulsion.

The Cronbach's alpha coefficient was also calculated only for multi-point scales that assessed

**Table 1 | Practical recommendations for improving inclusive education**

Principle	Practical Recommendations
Differentiation	Choosing a training group and control methods
Individualisation	Questionnaire, interview, and training support with the involvement of a training supervisor
Incentives	Loyal assessment, the ability to choose the method of assessment, a favourable emotional environment in the team, fair competition
Positive atmosphere in the team	Effective communication with teachers, including teachers' availability to explain the topic, correspondence, dialogue, and messenger communication. Positive communication with classmates, students' involvement in creating joint projects, and working in groups with common interests.
Availability	Provide barrier-free facilities by default and accessibility to additional learning aids for all without focusing on the unique needs of students with disabilities.
Justice	Accessibility of teaching methods, assessments, and schedules for all students without exception.

Source: Compiled by the author.

**Table 2 | An example of differential distribution of a training course**

Form of study	Focus & Content Ratio	Schedule	Teaching Method	Assessment
Full-time	80% theory/20% practice	1.5 h weekly	Lectures, small-group discussions	Testing
Remote	80% practice/20% theory	2× per week, 1.5 h	Seminars, debates	Oral exam
Mixed	50% theory/50% practice	3 h weekly	Independent study	Written exam
Evening	Practical/theoretical mix	1.5 h daily	Video materials	Coursework
Intensive	4.5 h daily	Ready-made methodological recommendations	Conference presentation	

Source: Compiled by the author.

satisfaction with the learning environment and social integration ( $\alpha = 0.721$ ), indicating acceptable internal consistency. For key constructs that were measured on a single point – “inequality of conditions”, “sense of injustice”, “avoidance by peers” and “intention to leave school” – we deliberately applied a single-point indicator approach. This decision is justified by the fact that these variables have a clear meaning, are one-dimensional in nature, and do not require complex multi-point scales for correct identification.

Based on the principle of differentiation, it is advisable to develop courses of study with different methodologies available for all students to choose from, regardless of physiological characteristics, as students with different disabilities have different needs. An example of differentiation in terms of form, content, time and methodology is shown in Table 2.

In order to increase the reliability of the results obtained, a quantitative assessment of missing data in the sample was carried out. The overall level of missing data was 4.7%, with the largest share falling on the variable “type of disability” (12.3%), followed by “subjective assessment of equality of conditions” (5.8%) and “intention to drop out” (3.1%). To minimize the risk of systematic error, a multiple imputation model was used, which included key predictors: gender, course of study, type of disability, assessment of the environment, and indicators of social integration. The imputation was performed using a chained equations algorithm with  $m = 20$  multiple data sets, which allowed for the stochastic nature of the missing data to be taken into account. For each cycle, the convergence of the models was checked using visual analysis of parameter trajectories and Rubin-Gelman tests, which did not reveal any significant deviations. A comparative analysis showed that the results of multiple imputation are consistent with the estimates of the complete case: the differences in regression coefficients did not exceed 0.05, and the confidence intervals remained overlapping. At the same time, the standard errors in the imputed sets were slightly smaller, indicating an increase in statistical power.

### Discussion

An important step in inclusive pedagogy is creating equal and fair learning conditions regardless of ability. Hence, taking into account students’ individual capabilities is a fundamental principle of inclusiveness. Ensuring equal conditions is not fair because people

with disabilities are not on an equal footing with other students in terms of opportunities, so supportive measures are needed to create fair conditions. At the same time, special conditions and simplified requirements for people with disabilities create a sense of injustice among other students, which leads to stigma and discrimination. This hostile atmosphere substantially increased the risk of dropout among students with disabilities compared to their peers, as confirmed by the statistical analyses presented in the Results section. This violates the basis of inclusion in education, which aims to include people with disabilities in society, and instead causes conflict and human rights violations. This problem is more widespread in higher education, as students, unlike students in primary and secondary schools, find themselves face-to-face with this conflict. Often, such conflict situations remain unresolved, and the student leaves their studies and does not join the professional life of society, leaving their dreams and potential unfulfilled.

To avoid such situations, an inclusive approach should be universal for everyone by creating favourable conditions for people with special needs that all students can use. Barrier-free mobility should be provided by default without focusing on specific students who need it.

Thus, before the start of the course, it is necessary to survey students, which would include the possibility of choosing the form, time, schedule, content, teaching methods and assessment. Based on the survey, creating groups with standard views on the educational process is advisable. In this way, the grouping would facilitate the distribution according to interests and schedules and not cause the allocation of groups with special needs. The quantitative findings indicated that perceptions of inequality and unfair treatment were strong predictors of disengagement, which underscores the importance of preventive inclusive strategies. For example, distance, evening or blended learning would allow students with limited mobility to reduce the number of visits to the institution that cause difficulties. Such forms of education are convenient not only for people with disabilities, students who study while working, and parents with young children. Organising an interview with students before they start studying is important to identify their needs and help them choose the type of course. For this purpose, it is advisable to organise student support with the involvement of curators in the educational process.

Since inclusive pedagogy requires practical orientation, it is advisable to compare the developed recommendations with the control points of Universal Design for Learning (UDL), which provide for multi-channel presentation of information, variability of activity forms, and different ways of demonstrating achievements. In particular, we correlate individualization and differentiation with the principle of providing multiple means of participation, while modification of methodology and flexible assessment correspond to the provisions on multiple modes of action and expression. To facilitate implementation, a short checklist is

used: adaptation of the schedule, choice of assessment form, availability of digital learning materials, curatorial support, organization of group projects.

At the same time, accessibility to the choice of special conditions for all students without exception is based on the principle of equity and avoids stigmatisation. Thus, creating courses with a choice of content, schedule, form, teaching method and assessment will create equal and fair conditions for all students, improve communication and create a positive learning environment. Thus, the interpretation of the results highlights not only dissatisfaction but also the mechanisms of stigma, which align with previous international studies on exclusion and equity in higher education.

Although Ukraine has legally recognized the right of people with disabilities to higher education and the provision of appropriate conditions for this, our research revealed dissatisfaction with the conditions of study of students with disabilities.<sup>19</sup> The results correlate with the findings of other authors. In particular, Barkas et al.,<sup>20</sup> after surveying students with disabilities, found anxiety among students and insufficient measures to ensure students' mental well-being. The authors emphasised the insufficient adaptation of curricula for inclusive education despite the efforts of higher education institutions to combat discrimination against students with disabilities. De Beer et al.<sup>21</sup> conducted a survey among people with visual impairments. They found that students with visual impairments face various types of stigma and marginalisation, mainly due to society's lack of understanding of their needs. Insufficient understanding of the needs of people with disabilities is also associated with the low willingness of people with disabilities to seek help from teachers and fellow students.<sup>22</sup> Students with chronic illnesses, due to the invisibility of their disability, feel distrust of their condition, so they are mostly on an equal footing with other students. Although most students with chronic illnesses have difficulties with learning under such conditions, they do not emphasize their condition because they fear stigmatization.<sup>23,24</sup> Students with disabilities often choose online education because of the fear of isolation, but although online classes are more accessible the quality of this type of learning still remains questionable.<sup>25</sup>

The reasons for low level of adaptive mechanisms for inclusion students is on the one hand, a lack of understanding of the basic needs for the quality integration of persons with disabilities and, on the other hand, a lack of awareness in the international community of a common concept of inclusive education. Florian<sup>26</sup> emphasises the importance of creating a conceptual framework that outlines special educational needs and appropriate inclusive education measures to meet these needs. Such a unified approach would help address cultural, linguistic, social, and economic differences that arise when borrowing inclusive education methodologies from other countries. Moreover, the development of inclusive education aims to create equitable conditions for education for all, including taking

into account the multicultural and ethnic diversity of students as a result of globalisation. Oleson<sup>27</sup> emphasises the psychological need for autonomy, identity and social justice not only among students with disabilities but also among students from different social classes, racial and ethnic backgrounds. Tavares<sup>28</sup> describes the isolation among international students, which indicates the need to change approaches to inclusiveness not only in terms of inclusion of people with disabilities but also in the intercultural diversity of students in the context of increasing globalisation.<sup>28</sup>

Financial constraints stand in the way of inclusiveness.<sup>29,30</sup> Our research has shown that the primary needs of people with disabilities are changes in methodology and the creation of a positive emotional atmosphere, which do not require significant costs. Nevertheless, it is necessary to provide personalized support departments for people with disabilities, because from the students' point of view they improve communication with teachers and help establish relationships with fellow students.<sup>25,31</sup> At the same time, less economically successful countries do not use the potential of inclusive education development due to their financial inability, as they follow the example of research in economically developed countries that conduct a large number of studies, including using financially costly mechanisms.<sup>32,33</sup> Instead, a conceptual framework would help less economically successful countries implement those mandatory and affordable measures.

It is necessary to emphasize the need to take into account the requirements of General Comment No. 4 to the Convention on the Rights of Persons with Disabilities, which concerns the right to inclusive education,<sup>34</sup> which defines inclusive education as a system that provides for the full participation of persons with disabilities in the educational process and society. In addition, our interpretation aligns with the recent UNESCO Guidelines on Inclusive Higher Education<sup>35</sup> and Ukrainian regulatory acts that institutionalize the right to inclusive education at national level. This comment highlights the systematic nature of changes that allow all learners, regardless of their abilities, to study together in mainstream educational institutions while receiving the necessary support. We agree with the new UNESCO Guidelines on Inclusive Higher Education that indicate that systemic changes must be implemented to provide fairness and access to every learner on the planet.<sup>35</sup> On the national level, inclusiveness has also been reinforced by regulatory documents in Ukraine, such as Resolution No. 779 on the creation of inclusive resource centers<sup>36</sup> and Order No. 1236 which regulates the creation of inclusive education in the institutions of higher learning.<sup>37</sup>

There are a number of limitations in the study. To begin with, online surveys are prone to self-selection bias since the survey was voluntary and advertised through university resources and may have included students more interested in inclusiveness. Second, the respondents could declare their disability status, which was not medically confirmed and this could result in underreporting or misclassification. Third,

the cross-sectional design does not permit the causal explanation of the identified associations between dissatisfaction, stigma and the intention to drop out. Fourth, the results are cultural-specific to Ukraine and can not necessarily be applied to different higher education settings. Lastly, the use of one self-report measure can bring about a common-method bias. Future research ought to overcome these limitations through the use of longitudinal designs, data triangulation and the inclusion of perspectives of university staff and administrators, as well as, students.

### Conclusion

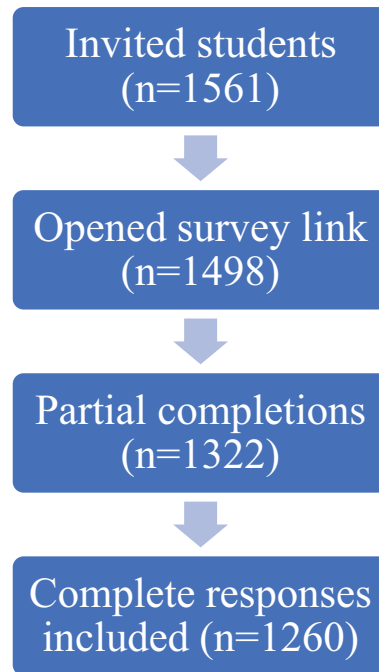
According to the survey results, our study revealed a low level of satisfaction with the needs of students with disabilities, which was manifested by dissatisfaction with the learning environment and low assessment of inclusive conditions in higher education institutions. It also revealed a lack of understanding of the needs of students with disabilities in the student community. Differences in views between students led to conflicts that manifested themselves in avoidance of students with disabilities, which created a hostile learning environment and caused more than 40% of students with disabilities to drop out of their studies. The reason for the stigmatisation of this category of students was a sense of injustice among the student community. To overcome the conflict of injustice and unequal learning conditions, recommendations were developed based on the principles of individualisation, differentiation, accessibility and equity, which included the choice of content, form, teaching methodology and assessment for all students.

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**Appendix**  
Appendix 1. STROBE-style survey flow diagram



**Appendix 2. Questionnaire**  
[https://docs.google.com/forms/d/e/1FAIpQLSeoR5Sj\\_fFqKEetLKIFzqUz4s-IZx2ZIA2zYxIC-ufomY7aHA/viewform?usp=header](https://docs.google.com/forms/d/e/1FAIpQLSeoR5Sj_fFqKEetLKIFzqUz4s-IZx2ZIA2zYxIC-ufomY7aHA/viewform?usp=header)

1. Gender:
  - Female
  - Male
2. Age:
3. Course of study:
  - 1
  - 2
  - 3
  - 4
  - 5
4. Do you have any special needs (disability)?
  - Yes
  - No
- 4a. If yes, indicate the systemic disease that caused the disability:
  - Cardiovascular
  - Nervous
  - Musculoskeletal system
  - Other
  - I don't want to answer

5. Are you satisfied with the study conditions at your higher education institution?
  - Yes
  - More like this
  - No
  - Rather not
6. Do you think the learning environment is equal for all students at your institution?
  - Yes
  - More like this
  - No
  - Rather not
7. Do you think the learning environment is adapted to the education of people with disabilities?
  - Yes
  - More like this
  - No
  - Rather not
8. What measures will improve the conditions for including students with special needs in your educational institution?
 

Open answer \_\_\_\_\_
9. Have you ever felt unfairness towards you compared to students with disabilities/without disabilities?
  - Yes
  - More like this
  - No
  - Rather not
10. If so, how has this affected your relationship with students with disabilities?
  - Positives.
  - Negative
  - It was the lack of communication
11. Did you feel shunned by other students on the course?
  - Yes
  - More like this
  - No
  - Rather not
12. Have you ever wanted to leave your studies at your educational institution?
  - Yes
  - More like this
  - No
  - Rather not

13. If you wanted to withdraw from your educational institution, please indicate the reason.

Open answer \_\_\_\_\_

**Appendix 3. Results of multivariable logistic regression analyses**

**Table A | Predictors of intention to drop out (n = 1260)**

Variable	aOR	95% CI	p-value
Disability status (yes vs no)	2.34	1.62 – 3.39	<0.001
Gender (female vs male)	1.12	0.88 – 1.45	0.352
Year of study (per increase)	0.91	0.82 – 1.01	0.078
Type of disability (ref: other)			
– Cardiovascular	1.28	0.77 – 2.13	0.335
– Neurological	1.71	1.02 – 2.87	0.041
– Musculoskeletal	1.39	0.83 – 2.34	0.209

**Table B | Predictors of perceived inequality of study conditions (n = 1260)**

Variable	aOR	95% CI	p-value
Disability status (yes vs no)	3.12	2.25 – 4.32	<0.001
Gender (female vs male)	1.05	0.81 – 1.36	0.704
Year of study (per increase)	0.94	0.85 – 1.04	0.218

- aOR – adjusted odds ratio; CI – confidence interval.
- Models controlled for gender, year of study, and type of disability.
- All assumptions of logistic regression were tested and met (no multicollinearity, linearity of continuous variables in the logit, independent observations).
- Missing data were primarily handled through list-wise deletion; sensitivity analyses with multiple imputation produced consistent results.

**Appendix 4. Sample characteristics and survey data**

Male	605	48%
Female	655	52%
Course of study 1st	429	34%
2nd	265	21%
3rd	214	17%
4th	189	15%
5th	163	13%
Students with disabilities	129	10%
Students without disabilities	1131	90%
Type of disability		
Cardiovascular	24	18.6%
Neurological	31	24.1%
Musculoskeletal	32	24.8%
Others	15	11.6%
Don't want to answer	27	20.9%

Average age	18.2± 1.7	
Dissatisfaction of study conditions	91	70.6%
Students with disabilities	641	56.7%
Students without disabilities		
Unequal learning conditions	112	86.8%
Students with disabilities	585	51.7%
Students without disabilities		
Unadapted study environment	109	84.5%
Students with disabilities	369	32.6%
Students without disabilities		
Felt avoided	82	63.6%
Students with disabilities	169	14.9%
Students without disabilities		
Felt unfair treating	106	82.2%
Students with disabilities	787	69.6%
Students without disabilities		
Wanted to drop out the university	59	45.7%
Students with disabilities	271	23.9%
Students without disabilities		

**Appendix 5. Main practical recommendations**

- Development of multiple teaching methodologies with the possibility of choosing the most optimal one for all students without emphasis on individualisation.
- Conducting an introduction to different approaches to teaching and further questionnaires in order to choose the most optimal one for each student.
- Conducting additional personal interviews with the course supervisor regarding wishes for the course and shortcomings of the course.
- Allocating separate hours for communication with the supervisor and teachers in a offline or online format.
- Conducting anonymous periodic monitoring of course satisfaction among students during the academic year.
- Creating conditions for changing the learning format at the student's request.
- Planning extracurricular practical classes to improve communication between students and create a friendly atmosphere.
- Introducing fair assessment of achievements without concessions.