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Breaking Barriers: The Influence of Teacher Characteristics on Inclusive Education

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Abstract: The effectiveness of inclusive education depends on the specific characteristics of the implementation context. Therefore, studying the role of teachers' characteristics on inclusion remains a significant concern worldwide. This research investigated the difference between the attitudes of secondary school teachers in Bangladesh regarding including students with intellectual disabilities based on their characteristics. Following a quantitative approach, an adapted survey questionnaire was used. The study purposively determined the participation of 55 general and special education teachers from 8 schools. Positive attitudes toward inclusion are more prevalent among female teachers, special education teachers, those who have previously completed a course in special education, and those who have had fewer students with intellectual disabilities in their classrooms, according to the findings. No statistically significant difference was observed in the teachers' attitudes according to their level of teaching experience and the subject matter they taught. Explanations of the findings are provided, along with recommendations.

Keywords: inclusion, intellectual disabilities, teachers' attitude, secondary education, Bangladesh

1. Introduction

Significant progress has been made in educational provision for students with special needs over the last two decades [1]. Considerable importance has been placed on implementing inclusive educational environments in primary and secondary schools worldwide in accordance with legislative and educational policy developments [2].

Cologon [3] examines inclusive education on different levels and found that it is a situation-specific method. A study by Genovesi et al. [4] indicates that various factors, such as established policies, laws, resources, training facilities, collaboration, incentives, and recognition, greatly influence the inclusion process. Moreover, it is widely acknowledged that the effectiveness of inclusive practice heavily depends on the teachers' knowledge, abilities, insight, capability, and attitudes [5]. Therefore, studying teachers' attitudes toward inclusion remains a significant concern worldwide.

As a signatory to numerous international agreements, Bangladesh strives to provide all children with an inclusive education [6]. As inclusion policy and practice have yet to become firmly embedded in Bangladeshi schools, it is legitimate to state that educational provision for children with special educational needs is undergoing a transitional period [7, 8]. Teachers often have problems with excessive workloads, lack of resources, low pay, limited professional growth opportunities, accessibility issues, lack of administrative support, and problems with the work environment [9]. Considering the circumstances, the inclusion of students with special needs, let alone those with intellectual disabilities, receives minimal consideration. Also, intrinsic factors profoundly influence the inclusion process. This study aimed to explore whether teachers' attitudes toward including students with intellectual disabilities are influenced by their characteristics, bridge the knowledge gap, and explain the significance of the findings in the study context.

1.1. Hypothesis of the study

A research hypothesis is an educated prediction based on background research and current knowledge [10, 11]. Hypotheses lead the study, provide solutions, explanations [12], and predictions concerning new phenomena or formal statements about the expected relationship between an independent variable and a dependent variable [13]. This study followed six null hypotheses. This type of hypothesis provides a negative statement indicating no relationship or difference between two variables [14].

H1: There is no significant mean difference in attitude scores toward including students with intellectual disabilities between male and female teachers.

H2: There is no significant mean difference in attitude scores toward including students with intellectual disabilities between special education and general education teachers.

H3: There is no statistically significant mean difference in attitude scores toward including students with intellectual disabilities among groups of teachers regarding teaching experiences.

H4: There is no statistically significant difference in attitude scores toward including students with intellectual disabilities among groups of teachers based on the subjects they teach.

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H5: There is no significant difference in attitude scores toward including students with intellectual disabilities between teachers who completed a special education course and those who did not.

H6: There is no significant difference in the mean attitude scores toward including students with intellectual disabilities between teachers with zero to one student and those with more than one student.

1.2. Critical components of successful inclusion

International laws and policies encourage the inclusion of students with special needs and their right to an inclusive education at all levels (Even inclusive education advocates often consider some children "too disabled" to be included [3]. Children with special needs are excluded from general schools. The situation is considerably more challenging for individuals with intellectual disabilities [15].

Inclusion is sometimes seen as an "additional" effort done by educators to meet students' additional needs rather than appreciated full participation and belonging for all with advantages [16]. The concept of "the normal student" and the focus on making students "the same enough" to "fit" into settings, systems, and practices inhibit inclusion [17]. Placing students in "general" settings but in separate classes or activities or without modifying pedagogy and practice to include everyone is not inclusive education [3].

Inclusive education in research is inherently complex, rooted in political and normative principles of democracy and justice [18]. Rapp and Corral-Granados [19] characterize this notion as intricate, expansive, and ambiguous, complicating its analysis and development. Furthermore, inclusive education, which addresses barriers to learning, has the potential to promote equity and social justice irrespective of students' needs [20]. Variations exist among researchers and nations in the interpretation and definition of inclusive education [21]. The diversity of meanings and perspectives further complicates the pursuit of practical, inclusive education [19].

Additionally, the achievement of educational inclusion necessitates the cooperation and synergy of both general and special education teachers [22]. Due to the time and professionalism required for collaboration, general and special education teachers have different viewpoints on its advantages and disadvantages [23]. As Lakkala et al. [24] said, collaboration needs clear goals, shared resources, and workers who work together as a team and take turns making decisions and showing responsibility for the results. Thus, inclusive education programs depend on teacher attitudes [25].

In conclusion, notwithstanding the criticisms toward inclusive education, it is evident that it yields favorable outcomes. However, the practice of segregating students who have been labeled with "severe and multiple" or "profound" impairments persists [3]. Undoubtedly, students who have been classified as having "severe and multiple" or "profound," that is, intellectual or sensory difficulties, face the highest likelihood of experiencing segregation in educational settings across the globe [26]. The situation in Bangladesh is the same. Realizing this, an essential part of this study is looking into teachers' attitudes based on the role of their characteristics.

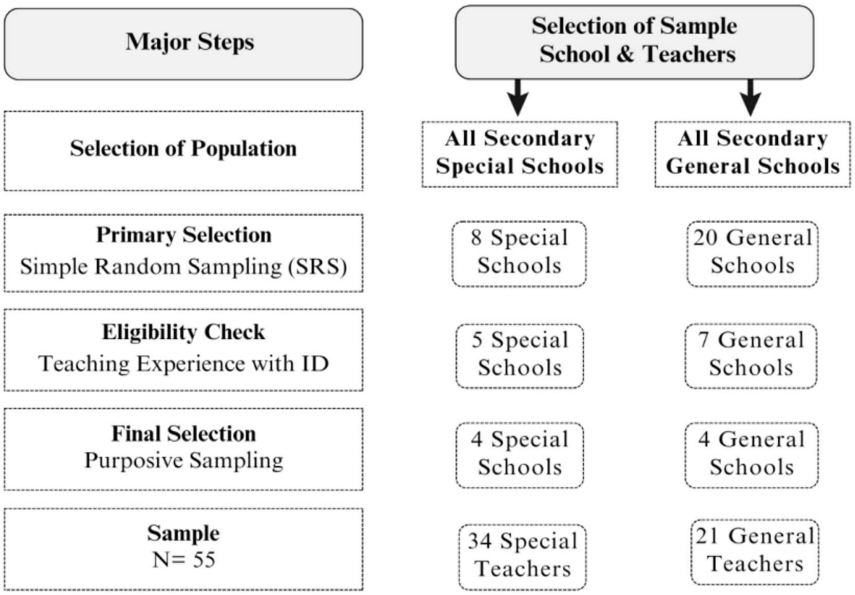
2. Materials and Methods

In this study, the researchers used a quantitative design. Quantitative research methods are defined as using numerical data and arithmetic, especially statistics, to describe a topic or phenomenon [27]. This form of research "employs strategies of inquiry, such as experiments and surveys, and collects data on predetermined instruments that yield statistical data" [14]. Researchers have examined teachers' attitudes regarding intellectual disability inclusion and influencing factors, mainly teacher characteristics. Given its emphasis on hypothesis testing, cause-and-effect analysis, and prediction, a quantitative research design was best for meeting the requirements.

2.1. Sampling technique

To meet the study's objectives, the researchers have ensured the participation of individuals with diversified identities. Considering the varied characteristics of the participants, that is, their gender identity, service type, work experience, subject area, previous inclusive education knowledge, and the number of students present in the classroom, the study explored the differences between teachers' attitudes toward intellectual disability inclusion based on their characteristics. As Figure 1 displays, all the teachers of general and special schools teaching secondary-level students at the study

Figure 1
Sample selection



location, Rajshahi City, comprise the total population. Using a simple random sampling technique, the researchers primarily selected all (8) special schools in the city and a feasible number of 20 general schools for further investigation. As the study includes questions that can only be administered to teachers experienced with teaching students with intellectual disabilities, the researchers inquired whether there were any students with intellectual disabilities in these schools within the past three years. (5) Special and (7) general secondary schools fulfilled the eligibility*. After the confirmation, the researchers purposively selected four special and four general schools. Finally, the researchers invited all the selected school teachers to participate in the survey. Participation in the study was completely voluntary. Out of 63 teachers asked to participate, 55 returned the surveys for a response rate of 87%.

**Note: To be eligible to participate in this study, each teacher had to hold at least one year of experience teaching a student with intellectual disabilities within the past three years. Therefore, the number of participants may seem very small; they actually represented 87% of the sample eligible for this particular study. The researchers hypothesized that a teacher who had taught students with intellectual disabilities more than three years ago could not correctly answer the statements about classroom practices. This criterion was especially significant for general school teachers, as they rarely get the opportunity to nurture students with intellectual disabilities. However, it is acknowledged that the limitation of the sample size (N = 55) may impact the generalizability of the sample size. For future investigations, focus on a larger sample size and acknowledging diverse groups to represent Bangladesh's overall population is recommended. In addition, using a longitudinal study could also be helpful in tracking the changes in attitudes of teachers over time and the impact of professional development activities. While this study has limitations, the researchers believe it may lay the foundation for further steps to support the teachers by shaping their attitudes and for inclusive practices.*

Ethical considerations are of the utmost importance when treating humans as research subjects [28]. There were no personal or medical concerns that could have posed a risk of damage to the participants in the study. They were granted the autonomy to discontinue their involvement in the activity at any time. Before data collection, a written consent letter was obtained, which detailed the intended purposes and responsibilities of the participants. Data was collected in person by the researchers. Precautionary measures were taken in surveys to avoid social desirability bias, which occurs when participants respond in a manner they perceive as favorable or acceptable to researchers. Data has been restricted to the researchers exclusively to uphold principles of privacy and confidentiality. The research rigorously adhered to the Code of Ethics of the World Medical Association [29].

2.2. Instrument

A survey questionnaire was adapted from Cagney [30] to administer. The survey was customized to meet the requirements and context of the research. There were three sections in the questionnaire. Section (A) collected detailed demographic information from the participants. Section (B) was obtained to collect information regarding the presence of students with intellectual disabilities in the classroom. Section (C) invited participants to reply to statements regarding their attitude on including students with intellectual disabilities in general education classrooms. A 7-point scale was used to quantify the participants' level of agreement with each of the statements.

In the original study by Cagney [30], the reliability of the survey instrument was assessed using the Spearman–Brown formula, which resulted in a coefficient of 0.714 (N = 64), which was considered acceptable. This study used Cronbach's alpha to test internal consistency, obtaining a value of 0.723 for the 24 items, indicating acceptable reliability. While both methods reveal acceptable reliability, Cronbach's alpha provides a more comprehensive measure across all items. Additionally, the tool was initially customized in English, translated into Bengali, and utilized on the ground. For the participants' convenience, the researchers prioritized the Bengali language. The researchers and another PhD researcher in English language and pedagogy translated English into Bengali. The language's fluency and clarity of meaning have been ensured. Despite the adaptation of the instruments, the reliability score indicates that the survey instruments remain consistent in the context of Bangladesh.

2.3. Data collection and coding

The survey questionnaire includes 24 statements, 16 of which were stated positively (S1, S2, S3, S4, S6, S7, S11, S12, S13, S14, S19, S20, S21, S22, S23, and S24) and 8 of which were stated negatively (S5, S8, S9, S10, S15, S16, S17, S18). These statements centered primarily on the perceptions and attitudes of educators toward students with intellectual disabilities, the role of educators, curriculum and assessment concerns, and other inclusion-related factors. Some of the examples of the statements are: Students with Intellectual Disabilities are a challenge to work with; Students with Intellectual Disabilities should be required to do their work in the same amount of time as the general education students do; I sometimes feel angry when I see students with Intellectual Disabilities are enrolled in my classes. Participants were asked to rate each item on a seven-point Likert scale ranging from strongly disagree to strongly agree. Table 1 displays the coding used to enter the data in response to the positive and negative comments. This table's coding was utilized only for scoring. When statistics were performed on all other statements, their scores remained unchanged.

Mean scores between 4.6 and 7 on positively stated statements and between 1.0 and 3.5 on negatively stated statements indicated positive attitudes toward the statements. Neutral attitudes were indicated by mean scores ranging between 3.6 and 4.5 for positively and negatively stated statements. Finally, mean scores between 1 and 3.5 for positively stated items and between 4.6 and 7 for negatively stated statements were interpreted as indicating negative views toward such propositions.

Table 1
Coding of positive and negative statements

	Strongly disagree	Disagree	Slightly disagree	Not Sure	Slightly agree	Agree	Strongly agree
Positive statements	1	2	3	4	5	6	7
Negative statements	7	6	5	4	3	2	1

2.4. Data analysis

An independent samples *t*-test was used to measure the differences among the teachers' attitudes (H1, H2, H5, and H6). A one-way analysis of variance (ANOVA) was employed to examine attitude scores and mean differences among different groups (H3 and H4).

3. Results

Fifty-five individuals participated in the survey; 37 (67.2%) were female, and 18 (32.8%) were male. The majority of teachers engaged in special education (Table 2). There were 34 special education teachers (61.9%) and 21 general education teachers (38.1%). Teaching experience varied among participants. Eight participants (14.5%) had 1–5 years of teaching experience, 17 (30.9%) had 6–10 years, 12 (21.8%) had 11–15 years, 7 (12.7%) had 16–20 years, and 11 (20.1%) had more than 20 years. About half of the teachers (27 of 55) taught language (Bengali and English). Others taught physical education, science, mathematics, and other topics. About 65.4% of teachers reported that they had never studied special education during their academic studies. The other (34.6%) disagreed with this. One to twenty-one students with intellectual disabilities were present in the classrooms of the majority of teachers.

Table 3 shows a comparative analysis conducted using an independent samples *t*-test to assess the average attitude scores of including students with intellectual disabilities between male (n = 18) and female (n = 37) teachers. Both Shapiro–Wilk statistics were not statistically significant, suggesting that the assumption of normality was upheld. Levene's test yielded a non-significant result, indicating that the assumption of equal variance between both groups can be made. The *t*-test yielded a statistically significant result, indicating that the mean teachers' attitudes toward inclusion score for males (M = 114.33, SD = 14.05) was significantly lower than that of females (M = 123.54, SD = 13.74). The mean difference between the two groups was 9.21, with a 95% confidence interval of (lower 17.19, upper 1.23). The *t*-value was 2.31, with 53 degrees of freedom, resulting in a *p*-value of less than 0.05 (two-tailed). So, a significant difference in attitude mean scores toward including students with intellectual disabilities between male and female teachers. Therefore, the hypothesis of the study H_1 is rejected.

Table 4 shows a comparative analysis conducted using an independent samples *t*-test to assess the average attitude scores of including students with intellectual disabilities between special education (n = 34) and general education (n = 21) teachers. Both Shapiro–Wilk statistics were not statistically significant, suggesting that the assumption of normality was upheld. Levene's test

Table 2
Demographics of the participants

Characteristics	Frequency (N = 55)	%
Sex		
Male	**18**	32.8
Female	**37**	67.2
Type of education service		
General education teacher	**21**	38.1
Special education teacher	**34**	61.9
Year of teaching experience		
1–5 years	**8**	14.5
6–10 years	**17**	30.9
11–15 years	**12**	21.8
16–20 years	**7**	12.7
Above 20 years	**11**	
Subject the participants taught		20.1
Math	**5**	9.1
Bangladesh and Global Studies	**3**	5.4
Language (Bangla/English)	**27**	49.1
General Science	**5**	9.1
Physical Education	**10**	18.2
Other	**5**	9.1
Previous coursework related to special education		
Yes	**36**	65.4
No	**19**	34.6
Present number of students (intellectual disabilities)		
No/one student	**23**	41.9
More than one student	**32**	58.1

Table 3
Mean difference in attitude scores between male and female teachers

	Sex	*N*	Mean	*SD*	*t*
Attitude's	Female	37	123.54	13.73	2.31*
	Male	18	114.33	14.05	

Note: *$p < 0.05$.

Table 4
Mean difference of attitude scores between special education and general education teachers

	Types of teachers	*N*	Mean	*SD*	*t*
Attitude's	Special education teacher	34	128.00	10.46	6.52*
	General education teacher	21	108.42	11.39	

Note: *p < 0.01.

yielded a non-significant result, indicating that the assumption of equal variance between both groups can be made. The *t*-test yielded a statistically significant result, indicating that the mean teachers' attitudes toward inclusion score for special education teachers (M = 128, SD = 10.46) was significantly higher than that of general education teachers (M = 108.42, SD = 11.39). The mean difference between the two groups was 10.58, with a 95% confidence interval of (lower 25.59, upper 13.54). The *t*-value was 6.52, with 53 degrees of freedom, resulting in a *p*-value of less than 0.01 (two-tailed). So, a significant difference in attitude mean scores toward the inclusion of students with intellectual disabilities between special education and general education teachers was found in the study. Therefore, the hypothesis of the study H_2 is rejected.

Table 5 shows a one-way analysis of variance (ANOVA), which was employed to examine attitude scores and mean differences of including students with intellectual disabilities based on teaching experiences (1–5 years, 6–10 years, 11–15 years, 16–20 years, and above 20 years). The examination of the skewness, kurtosis, and Shapiro–Wilk statistics revealed that the normality assumption for the dependent variable (attitudes) remained intact. Levene's statistic yielded a non-significant result, indicating that the assumption of homogeneity of variance can be made.

A significant statistical difference was not observed in teachers' attitude scores toward including students with intellectual disabilities among the five groups, with a *p*-value of greater than 0.05. The analysis yielded an F-value of 1.9 with degrees of freedom of 4 and 50 and a *p*-value of 0.126. Although the results were not statistically significant, the observed difference in average scores between the groups was minimal. The effect size, computed using eta squared, was 0.13. Post hoc comparisons conducted with the Tukey HSD test revealed that the differences among average scores of teaching experiences for the 1–5 years (M = 125.62, SD = 17.18), 6–10 years (M = 125.29, SD = 12.45), 11–15 years (M = 115.92, SD = 16.38), 16–20 years (M = 122.57, SD = 11.54), and 20 years above (M = 113.18, SD = 11.87) were not significant. So, no mean difference in attitude scores toward including students with intellectual disabilities among the group of teachers regarding teaching experiences was found. Hence, the hypothesis of study H_3 failed to be rejected.

Table 6 shows that a one-way analysis of variance (ANOVA) was employed to examine attitude scores and mean differences toward including students with intellectual disabilities among the teachers based on the subject they taught (Mathematics, Bangladesh and Global Studies, Language, General Science, Physical Education, Other subjects). The examination of the skewness, kurtosis, and Shapiro–Wilk statistics revealed that the normality assumption for the dependent variable (attitudes) remained intact. Levene's statistic yielded a non-significant result, indicating that the assumption of homogeneity of variance can be made.

A significant statistical difference was not observed in teachers' attitude scores toward including students with intellectual disabilities based on the subject they taught among the five groups, with a *p*-value of greater than 0.05. The analysis yielded an F-value of 1.67 with degrees of freedom of (5, 49) and a *p*-value of 0.338. Although the results were not statistically significant, the observed difference in average scores between the groups was minimal. The effect size, computed using eta squared, was 0.11. Post hoc comparisons conducted with the Tukey HSD test revealed that the differences among average scores of subject teachers for the mathematics (M = 108.40, SD = 19.98), Bangladesh and Global Studies (M = 121.33, SD = 20.60), Language (M = 122.40, SD = 14.83), General Science (M = 123.40, SD = 13.20), Physical Education (M = 123.30, SD = 7.56), and other subjects (M = 113.30, SD = 12.42) were not significant. So, no mean difference in attitude scores toward including students with intellectual disabilities among the group of teachers regarding taught subjects. Hence, the hypothesis of the study H_4 failed to be rejected.

Table 7 shows the mean difference in attitude scores toward including students with intellectual disabilities between teachers who completed a special related course and those who did not.

Table 5
Mean difference in attitude scores among groups of teachers with different teaching experiences

	Sum of squares	*df*	Mean square	*F*	*p*
Between groups	1472.03	4	368.00	1.9	0.126
Within groups	9707.67	50	194.15		
Total	11179.71	54			

Table 6
Mean difference in attitude scores among groups of teachers teaching different subjects

	Sum of squares	*df*	Mean square	*F*	*p*
Between groups	1190.82	5	238.17	1.67	0.338
Within groups	9988.88	49	203.86		
Total	11179.71	54			

Table 7
The average difference in attitude scores between teachers who have taken a special education course prior and those who have not

	Intervention	*N*	Mean	*SD*	*t*
Attitude's	Yes	36	125.92	10.29	4.44*
	No	19	110.32	15.72	

Note: *$p < 0.01$.

Table 8
The average difference in attitude scores between teachers who have zero to one student in the class and those who have more than one

	Students number	*N*	Mean	*SD*	*t*
Attitude's	Zero to one	23	112.44	15.84	4.00*
	More than one	32	126.34	9.95	

Note: *$p < 0.01$.

A comparative analysis was conducted using an independent samples *t*-test to assess the average attitude scores of including students with intellectual disabilities between teachers who have ($n = 36$) and have not ($n = 19$) completed a special education course. Both Shapiro–Wilk statistics were not statistically significant, suggesting that the assumption of normality was upheld. Levene's test yielded a non-significant result, indicating that the assumption of equal variance between both groups can be made. The *t*-test yielded a statistically significant result, indicating that the mean teachers' attitudes toward inclusion score for teachers who have completed a course ($M = 125.92$, $SD = 10.29$) was significantly higher than those who did not ($M = 110.32$, $SD = 15.72$). The mean difference between the two groups was 15.60, with a 95% confidence interval of (lower 8.55, upper 22.66). The *t*-value was 4.44, with 53 degrees of freedom, resulting in a *p*-value of less than 0.05 (two-tailed). So, a significant difference in attitude mean score toward including students with intellectual disabilities was found between teachers who completed a special related intervention course and those who did not. Therefore, the hypothesis of the study H_5 is rejected.

Table 8 shows the mean difference in attitude scores toward including students with intellectual disabilities between teachers who have zero to one student and those who have more than one student. A comparative analysis was conducted using an independent samples *t*-test to assess the average attitude scores of including students with intellectual disabilities between teachers having zero to one ($n = 23$) and more than one student ($n = 19$) in the class. Both Shapiro–Wilk statistics were not statistically significant, suggesting that the assumption of normality was upheld. Levene's test yielded a non-significant result, indicating that the assumption of equal variance between both groups can be made. The *t*-test yielded a statistically significant result, indicating that the mean teachers' attitudes toward inclusion score for teachers having zero to one student ($M = 112.43$, $SD = 15.84$) was significantly higher than those who had more than one student ($M = 126.34$, $SD = 9.95$). The mean difference between the two groups was 13.90, with a 95% confidence interval of (lower 20.89, upper 6.93). The *t*-value was 4.00, with 53 degrees of freedom, resulting in a *p*-value of less than 0.05 (two-tailed). So, a significant difference in attitude mean score toward including students with intellectual disabilities was found between teachers who have zero to one student and those who have more than one student. Therefore, the hypothesis of the study H_6 is rejected.

4. Discussion

Researchers found that teachers' attitudes and beliefs significantly affect their actions toward students with intellectual disabilities and the success of inclusion. Most research has revealed that teachers hold neutral or positive views; nevertheless, a few have found that teachers hold opposing views [31]. Cologon [3] describes a teacher with a positive attitude toward inclusion as someone who will acknowledge the education rights of the students, embrace human diversity, facilitate positive behavioral development, and be prepared to make adjustments to ensure an individual's overall development, both personally and as a group. This article's discussion firmly acknowledges it and focuses on this insight. On the contrary, mentioning a negative attitude toward inclusion signifies the opposite. Even teachers who support inclusion have sparked debate about implementing inclusive education programs [23]. However, more research needs to be done in Bangladesh, specifically on teachers' attitudes toward including students with intellectual disabilities [6]. This study sheds light on this issue by enquiring about teachers' characteristics.

The result indicates a higher attitude of female teachers toward including students with intellectual disabilities in general secondary education. This scenario may be due to the overlapping participation of female teachers and their positive experience with students. The result finds similarities with a previous study in Nigeria [32], which revealed that female teachers are more favorable to the inclusion of students with special needs than their male counterparts. Metsala and Harkins [33] reveal that female teachers generally experience greater responsibility and efficiency, particularly in educating students with special needs. In contrast, Dukmak [34] found that teachers generally had positive attitudes about educational inclusiveness, although male teachers had more positive responses than female teachers [35]. Ginevra et al. [31] found that gender plays no role in teachers' attitudes.

Educational inclusion requires collaboration between general and special education teachers [22]. Collaboration requires unity among employees, clear goals, shared resources, taking turns making decisions, and being accountable for their outcomes [24]. Thus, both kinds of teachers' attitudes play a crucial role in the success of inclusive education programs [36]. Similar to Guillemot et al.'s study [37], this study finds a significantly positive attitude of the special education teachers toward inclusion. As general

education teachers rarely get a chance to teach students with special needs, let alone the intellectually disabled ones, it is possible for them to hold a negative attitude toward inclusion. Gallego-Ortega and Rodríguez-Fuentes [38] found positive beliefs concerning inclusion depending on teacher specialization. Therefore, it is easy to understand that general teachers will hold negative attitudes as they significantly lack specialized training on inclusive education for students with intellectual disabilities [39]. Furthermore, teachers' lack of collaboration and cooperation creates an everlasting systemic barrier that crucially impacts the inclusion process [40].

Ginevra et al. [31] and Gallego-Ortega and Rodríguez-Fuentes [38] have examined how the positive or negative attitudes of general and special education teachers affect their students' academic success. Additionally, 85% of Portuguese general education instructors felt they needed more resources for teaching students with learning and behavioral issues [41]. Investigation on Ghanaian teachers' attitudes toward inclusion showed that teachers were aware of and supported inclusive education, but more resources were needed to ensure its implementation [15, 42]. These findings may be compelling in the context of Bangladesh as well. These findings are directly associated with Bangladesh's educational reality. Limitations in financial allocation, professional development opportunities for teachers, recognition of skilled teachers, and technology advancements significantly affect teachers' knowledge, abilities, attitudes, and beliefs. Research demonstrates that the accessibility of essential tools and support can significantly alter teachers' attitudes and beliefs [43]. The persistent scarcity of resources in the educational context adversely impacts the implementation of inclusive education [44].

Teaching experience and the subject of the teachers can influence their attitude toward inclusion [30]. However, a significant statistical difference was not observed in teachers' attitudes toward intellectual disabilities scores among teachers with different teaching experiences and subject expertise. The sample size of the current study needed to be larger to assess this dimension. Research suggests that teachers' attitudes are positively impacted by their teaching experience, that is, the number of years they have employed inclusive methods and taught children with intellectual disabilities [23]. In contrast, according to Dukmak [34], as teachers gain experience, their attitudes toward inclusion become less favorable [35]. Furthermore, Özer et al. [45] found that teachers with less experience were more optimistic, whereas Wilson et al. [46] reported the opposite to be true [47]. Ginevra et al. [31] found that the length of professional experience was not related to teachers' attitudes. Regarding the subject area, the findings align with Cagney [30], who found no statistically significant difference among teachers based on the curricular areas they taught. This contradicts Sigstad [48], who found that subject areas containing more interactive sessions are more suitable for teachers to manage severely disabled students.

The number of special education training courses taken and the number of students with special needs in the classroom can influence general education teachers' attitudes toward educating children with special needs in their classes [30]. Another study showed that teachers' attitudes toward inclusive education are linked to their special education training, and even short-term training improves teachers' attitudes [23]. The result of this study is identical to the literature, reflecting a much more favorable attitude among the teachers who have previously taken special education courses. A study in Nigeria revealed that professionally qualified teachers are likely to include students with special needs [32]. However, Offor and Akinlosotu [35] found no link between teachers' attitudes toward students with intellectual disabilities and their participation in special education courses.

Teachers' attitudes are connected to their prior interaction with students with intellectual disabilities. The result finds a significantly positive attitude among the teachers, having one or no students with intellectual disabilities present in their classroom during the research. In Bangladesh, it is believed that the massive number of students in the classroom and the teachers' busy schedules significantly impacted their attitude. This information is similar to Japanese investigations [15]. Sermier Dessemontet et al. [49] reported no relationship between contact frequency and teachers' attitudes. However, Arcangeli et al. [47] mentioned that higher-quality contact was related to less discomfort and increased readiness to connect with intellectually disabled individuals.

The discussion above sheds light on several critical indicators that impact teachers' inclusion attitude and the outcome of inclusive education. It is necessary to remember that successful inclusion requires a number of inputs. This study focused only on a single dimension of the colossal inquiry. Therefore, this study does not intend to answer many significant issues regarding inclusive education, including wider gender lenses, intersectionality, and differentiated learning.

Guillemot et al. [37] demonstrate that the inclusion of students with special needs, that is, intellectual disabilities, is gradually expanding globally. In recent years, numerous international and national policies and legislation have been implemented to guarantee the inclusion of all children, thereby fostering social justice. As the literature indicates, students' success in inclusion relies heavily on teachers' attitudes toward having them in the general education classroom [50]. Given more time, method, and participation, an extended inquiry of the present study is essential to ensure policy implications.

4.1. Limitations and recommendations

The present study is based on empirical data and would benefit from a more clearly articulated theoretical framework to better locate it within the existing literature on inclusive education. On the other hand, broadening the discussion to include more in-depth considerations of structural and societal elements such as gender dynamics, resource imbalances, and policy consequences would strengthen its critical edge. Despite these gaps, the study provides valuable insights and establishes the base for future research and practice in inclusive education.

Due to the limitations of the area and sample size, the results may not be generalized countrywide. Further inquiry on the whole country and the larger sample is recommended for policy implications. Again, the study did not find any significant difference based on the teaching experience and subject taught; a deeper investigation focusing on this criterion and training status is recommended to compare the scenario with the global landscape. Finally, educational work level and the highest degree completed significantly impact teachers' attitudes toward inclusion in all countries. This can be a targeted area of research in the future in Bangladesh.

5. Conclusions

Teachers' roles are crucial in educational inclusion and ensuring equitable opportunities for all. This study was significant because of its focus on including students with intellectual disabilities at the secondary level, an area that has gained minimal attention. Results revealed a significant difference among the attitudes of teachers based on their characteristics. Especially female teachers,

special education teachers, those who have previously completed a special education course, and those with fewer students with intellectual disabilities in their classrooms showed favorable attitudes toward inclusion. The takeaway of this study is that teachers' attitudes may change over time, based on the number of students they manage, the resources they have access to, the learning they achieve over time, or the type of training status they hold. Therefore, it is necessary to consider their characteristics while disseminating mass training. Failure to do so could lead to a significant decrease in the effectiveness of the training and the teachers' motivation to include students with intellectual disabilities. Undeniably, considering teachers' characteristics is crucial to break the barriers and move toward implementing successful inclusive approaches.

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Ethical Statement

The Research Review Committee of Rajshahi University conducted a thorough and rigorous examination of the proposal, ensuring a meticulous review of the proposed methodology and addressing ethical concerns associated with the research. The Research Review Committee(RRC) granted its final approval for the study in November 2022. All participants of the study provided their written consent before participating in the study.There were no personal or medical concerns that could have posed a risk of damage to the participants in the study. They were granted the autonomy to discontinue their involvement in the activity at any time.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

The data that support this work are available upon reasonable request to the corresponding author.

Author Contribution Statement

Ashike Md. Nurudden: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Visualization, Project administration. **Happy Kumar Das:** Conceptualization, Methodology, Writing – review & editing, Supervision, Project administration. **Monjurul Islam:** Software, Validation, Formal analysis, Writing – review & editing. **Md. Delowar Hossain:** Validation, Writing – review & editing.

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