

Factors Associated with Negative Attitude Towards Inclusive Society and Education of Children and Adolescent with Disabilities in Rwanda

Charles Nsanzabera^{1*}, François Xavier Karangwa², Maksim Fazlitdinov³, Elizaveta Zeynalova⁴, Patrick Suubi⁵, Jean Claude Rukundo⁶, Munezero Marie Mediatrice⁷, Ndagijimana Olivier⁸, Uvisabye Alexis⁹, Kayumba Mukubu Jean Gabriel¹⁰, Shyirambere Bruno¹¹, Nyirabugenimana Sylvie¹², Nyandwi Jean Paul¹³, Sarah Uwineza¹⁴

¹School of Public Health, Mount Kenya University, Kigali, Rwanda. Email-Id: ncha81@yahoo.fr

²School of Health Science, department of Public Health, Jomo Kenyatta University of Agriculture and Technology, Kenya

³African Institute of Research for Public Health and Development (AIRPD), Bujumbura, Burundi, Kigali, Rwanda.

^{4, 5, 6}United Nation Children's Fund, Rwanda

⁷College of Medicine and Health Sciences, University of Rwanda, Kigali, Rwanda

⁸United Nation Children's Fund, Rwanda.

⁹National Council of Persons with Disabilities (NCPD), Rwanda

^{10, 11, 12, 13}Umbrella of Organizations of Persons with Disabilities in the fight against HIV&AIDS and for Health Promotion (UPHLS), Rwanda

¹⁴National Council of Persons with Disabilities (NCPD), Rwanda

¹⁵National Child Development Agency (NCDA), Rwanda.

¹⁶VIAMO, Kigali, Rwanda

*Corresponding author: Dr. Charles Nsanzabera

KEYWORDS

Children with disabilities, inclusive, society, education

ABSTRACT

Background: Children and adolescent with disabilities are vulnerable to many forms of violence, discrimination, stigma, and exclusion which lead to lack of inclusive society and education.

Objective: The objective of this study was to evaluate the level of attitude and associated factors towards inclusive society and education.

Methods: This study was conducted under a cross-sectional design using a quantitative approach from September 28th to October 5th, 2021, on a sample size of 399. Quantitative data were collected through an interactive voice response (IVR) automated phone system technology from Viamo database, comprising 4000 mobile numbers in Rwanda.

Results: The findings revealed that 10% of the study participants exhibited a positive attitude, while 90% displayed a negative attitude. Additionally, factors such as perception that children with disabilities (CWDs) are unable to learn more rapidly in a general classroom, requiring special classroom settings, bringing shame to their families due to their disabilities, and needing to reside in special institutions were associated with a negative attitude towards inclusive society and education of CWDs. The adjusted odds ratios (AOR) and their corresponding confidence intervals (CI) and p-values for these associations were as follows: AOR=8.994, CI (5.119-16.324), p<0.001; AOR=7.244, CI (3.3942-15.429), p<0.001; AOR=3.597, CI (1.124-11.511), p=0.03; AOR=9.501, CI (3.160-28.566), p<0.001; AOR=5.205, CI (3.924-11.956), p<0.001, respectively.

Contribution: This study contributed substantially on the building of inclusive society and education for children and adolescent with disabilities by increasing socialization and sensitivity awareness through the adults people and children. This also reduce stigmatization and discrimination of people with disabilities and promote equal opportunity among Rwanda and international society.

Conclusion: This study concluded that the majority of study participants had negative attitude and factors such as devaluing CWDs that are unable to learn rapidly with others, ashamed family due to have CWDs, needing special class and to live in special institution were associated with negative attitude and decline inclusive society and education.

1. Introduction

Inclusive society and education for children and adolescent with disabilities (CAWD) remains a critical challenge due to negative attitudes and perceptions that undermine the physical, mental, and social abilities of CAWD for societal inclusion (Owusu et al., 2018; Babik et al., 2021). Knight (2023) estimates that more than 1.3 billion are persons with disabilities globally, equating to roughly one in six people globally, with approximately between 193 and 240 million being children and adolescents (UNICEF, 2021; UNICEF, 2023; WHO, 2023). Among them, one in 10 live with moderate or severe disabilities. These statistics, based on

demographic and health surveys from various countries, shed light on the pressing needs of people with disabilities regarding social, education, and economic inclusion, and on eliminating issues such as exclusion, stigma, and discrimination (Thompson et al., 2020; UNICEF, 2021).

In Rwanda, the situation is emblematic of broader global trends. According to the 2022 thematic report of the 5th Rwanda Population and Housing Census, there were 391,775 people with disabilities, and children and adolescents aged 5 to 19 years accounted for 41.1%, totaling 161,282 individuals. Additionally, 28.8% of children with disabilities aged 5 to 17 years are orphans, and they are approximately three times more likely not to have attended school compared to their peers without disabilities, with rates of 24.6% in rural areas and 23.3% in urban areas. Despite efforts to address this issue, children with disabilities in Rwanda face significant challenges. According to the National Council of Persons with Disabilities (NCPD), they are disproportionately affected by educational disparities, malnutrition, and deprivation, which leads around 22% to miss formal education compared to their peers. Education emerges as a crucial component in addressing these disparities (NCPD, 2021).

As Sukbunpant et al. (2021) highlight, education policies must be structured to meet the diverse needs of children, ensuring inclusivity for all. However, many children, particularly those with disabilities, are excluded from mainstream education due to various factors such as poverty, discrimination, and disability (Yide et al., 2019). Traditionally, children with disabilities have faced barriers to education, including exclusion, discrimination, segregation, and other negative attitude of the society towards them (Babik et al., 2021). According to Fedulova, negative attitudes towards inclusive society and education encompass a range of beliefs, behaviors, and systemic barriers that delay the full participation and inclusion of individuals with disabilities into society and educational settings. These attitudes can manifest at various levels, including social stigma, lack of accessibility, segregation and exclusion, low expectations and discrimination, lack of support and resources, negative teacher attitudes, policy, and legal barriers (Fedulova, 2019).

In addition, negative attitudes compound the challenges faced by children and adolescents with disabilities. At various levels, from government to community and school, negative perceptions constitute a barrier to inclusive education. Children with disabilities often experience low self-esteem and social rejection, worsening their exclusion from educational opportunities (Smythe et al., 2020). Moreover, negative attitudes among teachers can lead to further exclusion, as seen in cases where teachers may doubt a child's ability to learn due to his/her disability (González-Cacho & Abbas, 2021).

Addressing negative attitudes towards inclusive society and education requires comprehensive efforts to challenge stereotypes, remove barriers, promote awareness and acceptance, and ensure equal opportunities for all individuals, regardless of ability (Humanium, 2017). This involves fostering a culture of inclusion, advocating for policy reforms, providing support services and accommodations, and promoting positive representations of disability in media and society (Tsakiridou&Polyzopoulou, 2019).

In Rwanda, efforts have been made to promote inclusive education through legislation and policy frameworks. Law no. 01/2007 and the national education policy emphasize the inclusion of children with disabilities into mainstream educational settings (Government of Rwanda, 2017). However, challenges persist, with only 15% of children with disabilities in Rwanda currently accessing education (UPHLS, 2023). Factors contributing to this low rate of inclusion are multifaceted, including societal attitudes and infrastructure limitations. Given these challenges, there is a pressing need to investigate the factors influencing attitudes towards inclusive society and education of children and adolescents with disabilities in Rwanda. Such research can inform targeted interventions and policy reforms that would favor a more inclusive environment for all individuals, regardless of ability.

2. Methods and materials

This study was conducted under a cross-sectional design using a quantitative approach from September 28th to October 5th, 2021. The study population consisted of adult males and females enrolled in the Viamo database, comprising 4000 mobile numbers in Rwanda. The total sample size included was 399, calculated using the Yamane sample size formula.

The study instrument, composed of 27 items, was structured according to the study objectives and was tested for validity and reliability. Quantitative data were collected through an interactive voice response (IVR) automated phone system technology in a short and straightforward manner to ease the process and avoid bias. The validity test was carried out using the content validity index, yielding a result of 0.82, and the Cronbach alpha test was conducted to ensure internal consistency, yielding a result of 0.79.

2.1 Data Analysis

The collected data were processed through interactive voice response, extracted into Excel, coded, and then entered into the SPSS 22 statistical package for analysis using both descriptive and analytical statistics. The overall attitude level was determined using the Likert scale mean, where a mean level equal to or greater than 3.5 was considered a positive attitude, while a level below 3.5 was considered a negative attitude. The reversing technique was used for some items to match the 5 standardized Likert scale rate. Results were presented using tables and figures, utilizing percentages, frequencies, mean levels, and odds ratios. Bivariate and multivariate analysis were conducted using logistic regression to assess factors associated with negative attitudes towards the inclusion of children with disabilities into society. The significance level was set at a P-value below 0.05 at a 95% confidence interval.

2.2 Ethical Clearance

This study adhered to ethical processes in accordance with the requirements of the Rwanda National Ethics Committee, obtaining ethical clearance (No. 710/RNEC/2021) to ensure that key ethical principles such as confidentiality, privacy, and respect for human rights were upheld. Additionally, Prior to the data collection, consent forms were signed by study participants.

3. Results

3.1 Socio-demographic characteristics of study participants

This study included adults aged 18 years and above enrolled in the Viamo phone cell database in Rwanda. Table 1 indicates that males comprised the majority at 53.6%, while females accounted for 46.4%. Most respondents were found to reside in rural areas, constituting 77.4%, while urban residents made up 21.3%. Additionally, 1.3% of respondents were unable to identify whether they lived in urban or rural areas. The wealth levels of study participants were predominantly at level 3, comprising 35.1% of the sample, followed by level 2 at 26.1%. **(Error! Reference source not found.)**

Table 1: Socio-demographic characteristics of study participants

Variable	Frequency	Percentage
Gender		
Male	214	53.6
Female	185	46.4
Total	399	100.0
Residence		
Urban	85	21.3
Rural	309	77.4
Not sure	5	1.3
Total	399	100.0
Wealth category		
Level 1	38	9.5
Level 2	104	26.1
Level 3	140	35.1
Level 4	49	12.3
Level 5	7	1.8
Don't know	45	11.3
Don't prefer to tell	16	4.0
Total	399	100.0

Source: Primary data, 2021

3.2 Level of knowledge regarding the types of children disabilities

The table 2 indicates that physical disability was mostly recognized by the study participants with 53.9% and followed by mental impairment (48.9%). The sensory impairment was the less recognized disability with 42.9%. (Table 2).

Table 2: The knowledge level regarding types of children disabilities

Variable	Frequency(n=399)	Percentage
Do you Consider Sensory impairment, such as deafness, and blindness as a disability?		
Yes	171	42.9
No	168	42.1
Not sure	60	15.0
Total	399	100.0
Do you consider Physical impairment as a disability?		
Yes	215	53.9
No	124	31.1
Not sure	60	15.0
Total	399	100.0
Do you consider Intellectual impairment, such as Down syndrome as a disability?		
Yes	180	45.1
No	165	41.4
Not sure	54	13.5
Total	399	100.0
Do you consider Mental impairment as a disability?		
Yes	195	48.9
No	161	40.4
Not sure	43	10.8
Total	399	100.0

Source: Primary data, 2021

Overall knowledge about types of disabilities

To ensure the knowledge level of categorization modified bloom's cutoff was used where respondents with $\geq 70\%$ were categorized as having high level of knowledge, respondent who scored below 70% were categorized as having low level of knowledge.

The results regarding the overall knowledge levels among study participants regarding disability revealed a predominantly weak picture, with only 35.3% of participants displaying a high level of knowledge. This low percentage underscores a weak understanding and recognition of disability among the majority of respondents. (Error! Reference source not found.)

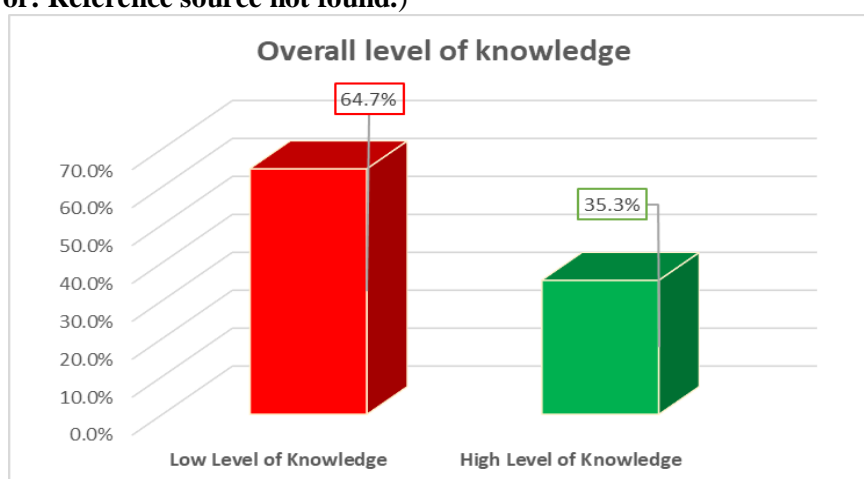


Figure 1: Overall knowledge regarding children disability types

3.3The attitude level regarding children with disabilities inclusive society and education

The evaluation of participants' attitudes towards crucial aspect of children with disabilities inclusive society and education, using a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).The analysis provides valuable insights into participants' perspectives on various facets of inclusive society and education, including beliefs about the beliefs of study participants about how children capacity of learning in general

classroom, Children with disabilities don't always need special institutions to live in, the if presence of children with disability in general classroom is not detrimental to children without disabilities.

The results showed that the majority of participants (59.6%) strongly agreed that boys with disabilities are not treated differently from the girls with disabilities (mean attitude score = 3.9), indicating a prevailing positive attitude towards inclusive society and education. Around 82.2% of the study participants agreed that the presence of children with disabilities in the classroom is beneficial for everyone, as it promotes tolerance and acceptance of being different (mean attitude score=3.7). Additionally, the findings showed that 84.2% of the study participant agreed that teachers should be willing to adapt the curriculum to meet the individual needs of all students regardless of their ability with mean score of 3.7. The item regarding children with disabilities don't always need special institutions to live mean score results was low with 2.3 and 81.2% disagreed on this perception. (**Error! Reference source not found.**)

Table 3. Attitude level towards children with disabilities inclusive society and education

Variable	Frequency(n=399)	Percentage	Mean level
Do you believe that Students with disabilities will learn more rapidly in a general classroom than in a special classroom?			3.08
SD	0	0.0	
D	148	37.1	
N	71	17.8	
A	180	45.1	
SA	0	0.0	
Total	399	100.0	
Do you believe that Students with disabilities don't create too much confusion in general classroom.			2.53
SD	0	0.0	
D	148	37.1	
N	71	17.8	
A	180	45.1	
SA	0	0.0	
Total	399	100.0	
Do you believe that Having children with disabilities in the classroom is beneficial for everyone, as it promotes tolerance and acceptance of being different?			3.7
SD	0	0.0	
D	16	4.0	
N	53	13.3	
A	330	82.7	
SA	0	0.0	
Total	399	100.0	
Do you think that Teachers should be willing to adapt the curriculum to meet the individual needs of all students regardless of their ability.			3.7
SD	0	0.0	
D	24	6.0	
N	39	9.8	
A	336	84.2	
SA	0	0.0	
Total	399	100.0	
Do you believe that Children with disabilities shouldn't be in special classrooms but with others in general school			2.4

Variable	Frequency(n=399)	Percentage	Mean level
SD	0	0.0	
D	292	73.2	
N	37	9.3	
A	70	17.5	
SA	0	0.0	
Total	399	100.0	
Do you think that Children with disabilities require normal attention, and their presence in the class is not detrimental for the children without disabilities			2.8
SD	0	0.0	
D	207	51.9	
N	45	11.3	
A	147	36.8	
SA	0	0.0	
Total	399	100.0	
Do you believe that Children with disabilities don't always need special schools?			2.6
SD	0	0.0	
D	262	65.7	
N	32	8.0	
A	105	26.3	
SA	0	0.0	
Total	399	100.0	
Do you think that Children with disabilities don't always need special institutions to live in?			2.3
SD	0	0.0	
D	324	81.2	
N	25	6.3	
A	50	12.5	
SA	0	0.0	
Total	399	100.0	
The majority of families in your community that have a child or children with disabilities don't try to hide them?			2.9
SD	0	0.0	
D	179	44.9	
N	46	11.5	
A	174	43.6	
SA	0	0.0	
Total	399	100.0	
Do you think that boys with disabilities are not treated differently from the girls with disabilities?			3.9
SD	77	19.3	
D	17	4.3	
N	8	2.0	
A	59	14.8	
SA	238	59.6	
Total	399	100.0	
Overall mean			3.02

Source: Primary data, 2021

Overall level of attitude towards children with disabilities inclusive society and education

The overall attitude level of categorization was carried out through the Likert scale mean level. A mean score above 3.5 signifies a positive attitude while the mean score below 3.5 was considered as negative attitude. The results regarding the overall attitude level among study participants regarding inclusive society and education for children with disabilities revealed a predominantly very weak picture, with only 10.0% of participants displaying a positive attitude. This low percentage underscores a weak perception regarding inclusive society and education for children with disabilities among the majority of respondents. **(Figure 2)**

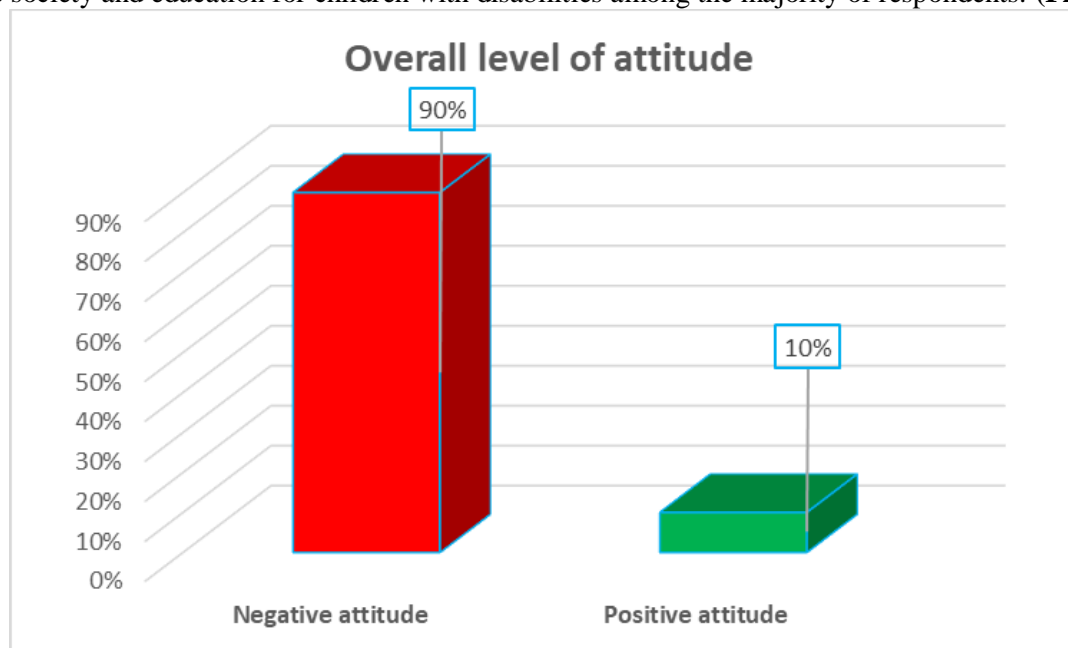


Figure 2: Overall level of attitude towards children with disabilities inclusive society and education

3.4The decisional attitude factors for children with disabilities for inclusive society and education

The findings in Table 4 depicted that the majority of study participants (51.9%) agreed that children with disabilities require a lot of attention and their presence in the class is detrimental for the children without disabilities and followed by 24.1% who mentioned that it depends on the type of disability. The results found that 69.7% of participants agreed that Students with disabilities often lack the academic skills necessary for success in a general classroom and 81.7% chose the institution as a best place to live for their children with disability which scored nearly the same result (76.7%) as the community choice. **(Table 4)**

Table 4: Other decisional attitude factors for children with disabilities for inclusive society and education

Variable	Frequency	Percentage
Children with disabilities require a lot of attention, and their presence in the class is detrimental for the children without disabilities.		
Disagree	85	21.3
Not sure	11	2.8
Depend on disability type	96	24.1
Agree	207	51.9
Total	399	100.0
Students with disabilities often lack the academic skills necessary for success in a general classroom.		
Disagree	36	9.0
Not sure	14	3.5
Depend on disability type	71	17.8
Agree	278	69.7
Total	399	100.0
Students with disabilities often lack the social skills necessary for success in a general classroom.		

Variable	Frequency	Percentage
Disagree	31	7.8
Not sure	25	6.3
Depend on disability type	90	22.6
Agree	253	63.4
Total	399	100.0
Students with disabilities often lack the social skills necessary for success in a general classroom.		
Disagree	31	7.8
Not sure	25	6.3
Depend on disability type	90	22.6
Agree	253	63.4
Total	399	100.0
What do you think is the best preschool education for Innocent?		
Staying at home and not attend preschool	14	3.5
Specialized kindergarten for children with disabilities,	87	21.8
Day centre for children with disabilities	246	61.7
General kindergarten for children with and without disabilities	52	13.0
Total	399	100.0
What about people in your community, where do you think the majority of them think Innocent should go?		
Staying at home and not attend preschool	39	9.8
Specialized kindergarten for children with disabilities,	87	21.8
Day centre for children with disabilities	227	56.9
General kindergarten for children with and without disabilities	46	11.5
Total	399	100.0
Where do you think is the best place for Innocent to live?		
An institution	326	81.7
At home	32	8.0
Not sure	41	10.3
Total	399	100.0
What about others in your community, which place would you say most of them chose for Innocent?		
An institution	306	76.7
At home	43	10.8
Not sure	50	12.5
Total	399	100.0
Imagine Innocent is your son, and you have to make decision about place to live, or school for him. To what extent would your decision depend on the opinions of people in your community?		
Not at all	226	56.6
Small extent	95	23.8
Moderate extent	51	12.8
Great extent	14	3.5
Completely	13	3.3
Total	399	100.0
Have you ever received any information or been informed about the children with disabilities in Rwanda?		
Yes	199	49.9
No	130	32.6
Don't remember	70	17.5
Total	399	100.0
Source of information about disabilities		

Variable	Frequency	Percentage
Tv and Radio	223	55.9
Social media	13	3.3
Community meetings	114	28.6
I have not heard any messages on the children with disabilities	49	12.3
Total	399	100.0

Source: Primary data, 2021

3.5 Factors associated with negative attitude towards children with disabilities inclusive society and education.

Socio-demographic factors associated with negative attitude towards inclusive society and education of children with disabilities.

Table 5 depicted the bivariate analysis of socio-demographic factors associated with negative attitude towards inclusive society and education of children with disabilities. The results showed no significance was found between socio-demographic factors and negative attitude towards inclusive society and education. (Table 5)

Table 5: Bivariate analysis of socio-demographic factors associated with negative attitude towards inclusive society and education of children with disabilities.

Variable	Overall level of attitude towards inclusive society and education.			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
Gender				2.309	0.087
Male	26(6.5)	188(47.1)	214(53.6)		
Female	14(3.5)	171(42.9)	185(46.4)		
Total	40(10.0)	359(90.0)	399(100.0)		
Residence				0.87	0.6
Urban	10(2.5)	75(18.8)	85(21.3)		
Rural	30(7.5)	279(69.9)	309(77.4)		
Not sure	0(0.0)	5(1.3)	5(1.3)		
Total	40(10.0)	359(90.0)	399(100.0)		
Wealth level				5.392	0.4
Level 1	2(.5)	36(9.0)	38(9.5)		
Level 2	8(2.0)	96(24.1)	104(26.1)		
Level 3	17(4.3)	123(30.8)	140(35.1)		
Level 4	8(2.0)	41(10.3)	49(12.3)		
Level 5	1(0.3)	6(1.5)	7(1.8)		
Don't know	3(0.8)	42(10.5)	45(11.3)		
Don't prefer to tell	1(0.3)	15(3.8)	16(4.0)		
Total	40(10.0)	359(90.0)	399(100.0)		

Source: Primary data, 2021

Educational factors associated with negative attitude towards inclusive education of children with disabilities.

Table 6 displays the bivariate association between educational factors and negative attitudes towards inclusive society and education. Seven variables were significantly associated with negative attitudes towards inclusive society and education. Three school choice-based items showed that 64.7%, 63.9%, and 70.9% of study participants agreed that CWD need special schools, create too much confusion in the general classroom, and should be in special classrooms to avoid rejection in the general school, with $X^2=85.908$, $X^2=39.256$, and $X^2=85.483$; $p<0.001$. Moreover, two other ability and skill-based items showed that 49.1% and 62.9% of the study participants agreed that CWD require high attention and are detrimental to other students, often lacking the academic skills for success in a general classroom, with $X^2=18.141$, $p<0.001$, and $X^2=16.816$, $p=0.001$. (Table 6)

Table 6: Bivariate analysis of educational factors associated with negative attitude towards inclusive education of children with disabilities.

Variable	Overall level of attitude regarding children with disabilities			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
Children with disabilities require a lot of attention, and their presence in the class is detrimental for the children without disabilities				18.142	<0.001
Disagree	17(4.3)	68(17.0)	85(21.3)		
Not sure	3(0.8)	8(2.0)	11(2.8)		
Depend on disability type	9(2.3)	87(21.8)	96(24.1)		
Agree	11(2.8)	196(49.1)	207(51.9)		
Total	40(10.0)	359(90.0)	399(100.0)		
Students with disabilities often lack the academic skills necessary for success in a general classroom.				16.816	0.001
Disagree	10(2.5)	26(6.5)	36(9.0)		
Not sure	0(0.0)	14(3.5)	14(3.5)		
Depend on disability type	3(0.8)	68(17.0)	71(17.8)		
Agree	27(6.8)	251(62.9)	278(69.7)		
Total	40(10.0)	359(90.0)	399(100.0)		
Students with disabilities often lack the social skills necessary for success in a general classroom.				7.407	0.06
Disagree	7(1.8)	24(6.0)	31(7.8)		
Not sure	4(1.0)	21(5.3)	25(6.3)		
Depend on disability type	7(1.8)	83(20.8)	90(22.6)		
Agree	22(5.5)	231(57.9)	253(63.4)		
Total	40(10.0)	359(90.0)	399(100.0)		
What do you think is the best preschool education for Innocent?				4.150	0.246
Staying at home and not attend preschool	1(0.3)	13(3.3)	14(3.5)		
Specialized kindergarten for CWDs	6(1.5)	81(20.3)	87(21.8)		
Day Centre for CWDs	24(6.0)	222(55.6)	246(61.7)		
General kindergarten for CWDs and CWTDS	9(2.3)	43(10.8)	52(13.0)		
Total	40(10.0)	359(90.0)	399(100.0)		
What about people in your community, where you live do you think the majority of them think Innocent should go?				5.405	0.144
Staying at home and not attend preschool	3(0.8)	36(9.0)	39(9.8)		
Specialized kindergarten for CWDs	7(1.8)	80(20.1)	87(21.8)		
Day Centre for children with disabilities	21(5.3)	206(51.6)	227(56.9)		
General kindergarten for CWDs and CWTDS	9(2.3)	37(9.3)	46(11.5)		
Total	40(10.0)	359(90.0)	399(100.0)		
Students with disabilities will learn more				12.149	0.002

Variable	Overall level of attitude regarding children with disabilities			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
rapidly in a general classroom than in a special classroom.					
Disagree	6(1.5)	142(35.6)	148(37.1)		
Not sure	6(1.5)	65(16.3)	71(17.8)		
Agree	28(7.0)	152(38.1)	180(45.1)		
Total	40(10.0)	359(90.0)	399(100.0)		
Teachers should be willing to adapt the curriculum to meet the individual needs of all students regardless of their ability.				2.443	0.486
Disagree	1(0.3)	23(5.8)	24(6.0)		
Don't Know	2(0.5)	33(8.3)	35(8.8)		
Not sure	0(0.0)	4(1.0)	4(1.0)		
Agree	37(9.3)	299(74.9)	336(84.5)		
Total	40(10.0)	359(90.0)	399(100.0)		
Children with disabilities need special schools?				85.908	<0.001
Disagree	35(8.8)	70(17.5)	105(26.3)		
Not sure	1(0.3)	31(7.8)	32(8.0)		
Agree	4(1.0)	258(64.7)	262(65.7)		
Total	40(10.0)	359(90.0)	399(100.0)		
Students with disabilities create too much confusion in general classroom.				39.256	<0.001
Disagree	22(5.5)	56(14.0)	78(19.5)		
Not sure	7(1.8)	48(12.0)	55(13.8)		
Agree	11(2.8)	255(63.9)	266(66.7)		
Total	40(10.0)	359(90.0)	399(100.0)		
Having children with disabilities in the classroom is beneficial for everyone, as it promotes tolerance and acceptance of being different?				0.737	0.692
Disagree	1(0.3)	15(3.8)	16(4.0)		
Not sure	4(1.0)	49(12.3)	53(13.3)		
Agree	35(8.8)	295(73.9)	330(82.7)		
Total	40(10.0)	359(90.0)	399(100.0)		
Children with disabilities should be in special classrooms so that they do not face rejection in the general school?				85.483	<0.001
Disagree	28(7.0)	42(10.5)	70(17.5)		
Not sure	3(0.8)	34(8.5)	37(9.3)		
Agree	9(2.3)	283(70.9)	292(73.2)		
Total	40(10.0)	359(90.0)	399(100.0)		

Source: Primary data, 2021

Table 7 portrayed the bivariate association between decisional and perceptual factors and negative attitudes

towards inclusive society and education. Four variables were significantly associated but three are substantially attached with negative attitudes towards inclusive society and education. The place to live and shame-based items showed that 78.2%, 74.7% and 48.4%, of study participants agreed that CWD need special institution to live in, institution is the best place of them, ashamed family that need to hide them, with $X^2=88.851$, $X^2=8.704$, and $X^2=13.423$; $p<0.05$. (Table 7)

Table 7: Bivariate analysis of decisional and perceptual factors associated with negative attitude towards inclusive education of children with disabilities.

Variable	Overall level of attitude regarding children with disabilities			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
The majority of families in your community that has a child or children with disabilities are ashamed of him or her?				13.423	0.001
Disagree	25(6.3)	122(30.6)	147(36.8)		
Not sure	1(0.3)	44(11.0)	45(11.3)		
Agree	14(3.5)	193(48.4)	207(51.9)		
Total	40(10.0)	359(90.0)	399(100.0)		
Imagine Innocent is your son, and you have to make decision about place to live, or school for him. To what extent would your decision depend on the opinions of people in your community?				3.490	0.479
Not at all	18(4.5)	208	226		
Small extent	11(2.8)	84(21.1)	95(23.8)		
Moderate extent	8(2.0)	43(10.8)	51(10.8)		
Great extent	2(0.5)	12(3.0)	14(3.5)		
Great extent	1(0.3)	12(3.0)	13(3.3)		
Total	40(10.0)	359(90.0)	399(100.0)		
The majority of families in your community that have a child or children with disabilities try to hide them?				0.598	0.742
Disagree	18(4.5)	161(40.4)	179(44.9)		
Not sure	6(1.5)	40(10.0)	46(11.5)		
Agree	16(4.1)	158(39.6)	174(43.6)		
Total	40(10.0)	359(90.0)	399(100.0)		
Children with disabilities need special institutions to live in?				88.851	<0.001
Disagree	23(50.8)	27(6.8)	50(12.5)		
Not sure	5(1.3)	20(5.0)	25(6.3)		
Agree	12(3.0)	312(78.2)	324(81.2)		
Total	40(10.0)	359(90.0)	399(100.0)		
Where do you think is the best place for Innocent to live?				8.704	0.013
An institution	28(7.0)	298(74.7)	326(81.7)		
At home	8(2.0)	24(6.0)	32(8.0)		
Not sure at home	4(1.0)	37(9.3)	41(10.3)		
Total	40(10.0)	359(90.0)	399(100.0)		

Variable	Overall level of attitude regarding children with disabilities			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
What about others in your community, which place would you say most of them chose for Innocent?				1.003	0.606
An institution	29(7.3)	277(69.4)	306(76.7)		
At home	4(1.0)	39(9.8)	43(10.8)		
At home	7(1.8)	43(10.8)	50(12.5)		
Total	40(10.0)	359(90.0)	399(100.0)		
Do you think that boys with disabilities are treated differently from the girls with disabilities?				21.451	<0.001
SD	37(9.3)	201(50.4)	238(59.6)		
D	2(0.5)	57(14.3)	59(14.8)		
Not sure	1(0.3)	7(1.8)	8(2.0)		
A	0(0.0)	17(4.3)	17(4.3)		
SA	0	77	77		
Total	40(10.0)	359(90.0)	399(100.0)		

Source: Primary data, 2021

Table 8 portrayed the bivariate analysis of knowledge and information-based factors associated with negative attitude towards inclusive society and education of children with disabilities. The results showed no significance was found knowledge and information-based factors and negative attitude towards inclusive society and education. **(Table 8)**

Table 8: Bivariate analysis of knowledge and information factors associated with negative attitude towards inclusive education of children with disabilities.

Variable	Overall level of attitude regarding children with disabilities			Chi-square	P-value
	Positive attitude (%)	Negative attitude (%)	Total (%)		
Have you ever received any information or been informed about the children with disabilities in Rwanda?				0.879	0.644
Yes	22(5.5)	177(44.4)	199(49.9)		
No	13(3.3)	117(29.3)	130(32.6)		
Don't remember	5(1.3)	65(16.3)	70(17.5)		
Total	40(10.0)	359(90.0)	399(100.0)		
Source of information about disabilities				4.129	0.248
Tv and Radio	25(6.3)	198(49.5)	223(55.9)		
Social media	1(0.3)	12(3.0)	13(3.3)		
Community meetings	13(3.3)	101(25.3)	114(28.6)		
I have not heard any messages on the CWDs	1(0.3)	48(12.0)	49(12.3)		
Total	40(10.0)	359(90.0)	399(100.0)		
Overall knowledge				1.195	0.274

Low level of Knowledge	29(7.3)	229(57.4)	258(64.7)
High level of Knowledge	11(2.8)	130(32.6)	141(35.3)
Total	40(10.0)	359(90.0)	399(100.0)

Source: Primary data, 2021

Multivariate analysis of factors associated with negative attitude towards inclusive education of children with disabilities.

The logistic regression analysis revealed significant associations between certain educational and perception factors towards inclusive society and education of children with disabilities.

Four factors such as children with disabilities (CWDs) being unable to learn more rapidly in a general classroom, requiring special classroom settings, ashamed family who tend to hide CWDs, and needing to reside in special institutions were associated with a negative attitude towards inclusive society and education of CWDs. The adjusted odds ratios (AOR) and their corresponding confidence intervals (CI) and p-values for these associations were as follows: AOR=8.994, CI (5.119-16.324), $p<0.001$; AOR=7.244, CI (3.3942-15.429), $p<0.001$; AOR=3.597, CI (1.124-11.511), $p=0.03$; AOR=9.501, CI (3.160-28.566), $p<0.001$; AOR=5.205, CI (3.924-11.956), $p<0.001$, respectively.

Moreover, the item that CWDs create too much confusion in general classroom was 7 times more likely to be associated with negative attitude towards inclusive society and education of children with disabilities. (Table 9)

Table 9: Multivariable Analysis of factors associated with negative attitude towards inclusive education of children with disabilities.

Variables n=399	Factors associated with negative attitude towards CWD		P-value
	AoR	95%CI	
CWDs learn more rapidly in general classroom than in special classroom			
Yes	Ref		
No	8.994	5.119-16.324	<0.001
CWDs need special school			
No	Ref		
Yes	7.244	3.3942-15.429	<0.001
Ashamed family due to have a CWDs			
No	Ref		
Yes	3.597	1.124-11.511	0.03
CWDs Need special classrooms to avoid general school rejection			
No	Ref		
Yes	9.501	3.160-28.566	<0.001
CWDs create too much confusion in general classroom			
No	Ref		
Yes	7.489	2.282-24.580	0.001
CWDs need high attention with detrimental effect for Children without disabilities			
No	Ref		
Yes	1.171	0.389-3.522	0.7
CWDs lack academic Capacity for studying in general school			
Yes	Ref		
No	1.026	0.266- 3.961	0.9

CWDs need to live in special institutions

No	Ref		
Yes	5.205	3.924-11.956	<0.001

Source: Primary data, 2021

4. Discussion

This study findings on sociodemographic characteristics revealed that males comprised the majority at 53.6%, while females accounted for 46.4%. Most respondents were found to reside in rural areas, constituting 77.4%, while urban residents made up 21.3%. Contrary to these findings, Sukbunpant et al. (2018) in their study on Thai preschool teachers' views about inclusive education for young children with disabilities found different composition of the sample. Indeed, females were majority (61%) while males were 39%. Also, urban residents made up of 55%. The reason for this discrepancy might be due to differences in the target population. While this study targeted adult males and females enrolled in the Viamo database, Sukbunpant's study concerned teachers only (Sukbunpant et al., 2018).

The findings of this study on the knowledge levels among study participants regarding the types of children disabilities revealed a predominantly weak picture, with only 35.3% of participants displaying a high level of knowledge. This low percentage underscores a weak understanding and recognition of disability among the majority of respondents. This knowledge results were frankly reported as lower in comparison with the study carried out by Cook et al (2018) on a multilevel approach to stigma and public health. According to these authors, 61.5% of their respondents displayed a high level of knowledge. Conversely, Sharma and Chow (2018), Monsen et al. (2020), Cambridge-Johnson (2019), Karaca (2022), Kart (2021) and Mbua (2022) came to the same conclusions showing a higher level of knowledge in their respective studies. The possible explanation of this difference might be the fact that this study concerned the population of Rwanda while Cook and al. conducted their study in Europe, where the population is more educated on the types of disability compared to the developing world (WHO, 2020).

The findings on attitude towards children with disabilities inclusive society and education revealed that 10% of the study participants exhibited a positive attitude, while 90% displayed a negative attitude. The level of positive attitude found in this study is lower compared to the one found in Bangladesh by Ahmmed et al. (2018) in their study on variables affecting teachers' attitudes towards inclusive education in Bangladesh. These authors found that 33% of teachers had positive attitude towards children with disabilities inclusive society and education. Sokal L, Sharma U (2017), Olinger (2018), Thompson et al. (2020), Knight (2023) and Abbas (2022) came to the same conclusions showing a higher level of positive attitude of the respondents in their respective studies. The reason for this variation may be due to the difference between the target population of the two studies. Indeed, the population of this study consisted of adult males and females enrolled in the Viamo database, in Rwanda while the target population of Ahmmed's study consisted of teachers of primary and secondary schools.

Concerning the factors influencing attitude towards inclusive society and education of CWDs in Rwanda, bivariate and multivariate analyses showed that factors such as children with disabilities being unable to learn more rapidly in a general classroom, requiring special classroom settings, bringing shame to their families due to their disabilities, and needing to reside in special institutions were associated with a negative attitude towards inclusive society and education of CWDs. Coherently, similar results were found in a study done by Smythe et al. (2020) on systematic review of interventions for reducing stigma experienced by children with disabilities and their families in low- and middle-income countries. According to them, a lot of factors contributed to the negative attitude towards inclusive society and education of CWDs. These include requiring special classroom settings and bringing shame to their families due to their disabilities. In their study, it was found that 54.5% of the respondents admitted that having a child with disability bring shame to the family and 68% of them admitted that having a child with disability requires special classroom settings for his/her education (Smythe et al., 2020).

The findings of this study showed that 81.7% and 76.7% of the respondents and the community, respectively, perceived that children with disabilities should live in institutions. This result has been controversially questioned and highlighted as a form of abandonment of children with disabilities in institutions, potentially exacerbating their vulnerability through their low ability to communicate to respond to abuse, discrimination, and violence against them. Some studies have revealed that the abandonment of children is linked to a lack of financial resources and the family's inability to cope with the burden of having children with disabilities

(Shaha, 2022).

In line with these findings, Contreras et al. (2020), Fedulova (2019), Tsakiridou and Polyzopoulou (2020), Vaz (2021), and Sukbunpant et al. (2021) reported similar results. The primary factor contributing to the negative attitudes towards inclusive society and education for children with disabilities (CWDs) is the perception among individuals that CWDs lack academic capacity to study in mainstream schools and ashamed family due to have a CWDs. Furthermore, it was found that negative attitudes were four times more likely to be associated with the perception of difficulties in adapting to mainstream schools and twice as likely to be associated with the shame felt by families of children with disabilities (CWDs), with adjusted odds ratios (AOR) of 4.12 and 2.04 respectively. This perception, which undermines the physical, mental, and social abilities of children with disabilities (CWDs) by society, has been a significant barrier to their engagement in inclusive education (Owusu et al., 2018; Babik et al., 2021).

The justification for this similarity might be because their study was done in low- and middle-income countries which have the same level of understanding as the population of Rwanda, which is also in the same category (Fedulova, 2019).

The findings from this study should be interpreted in light of some limitations. First, all data were derived from self-reported information and are thus susceptible to recall or other biases. Second, although the data are unique, their cross-sectional structure precludes any causal determination vis-à-vis the relationship between attitudes and inclusion practice. Finally, the results presented here pertain to the adult males and females enrolled in the Viamo database and may not be representative of the population across the nation. Longitudinal investigations should be conducted to disentangle the temporal ordering needed to identify the attitudes that affect inclusionary practices (Olinger, 2018; Sukbunpant et al., 2021).

The current study has both a theoretical contribution and practical implication. The theoretical contribution highlights the inclusive learning's role to minimize the least restrictive environments for students with disabilities compared to their peers. Identifying the population's attitudes of inclusive education can help promote the engagement of students with disabilities with general education classrooms (Polyzopoulou, 2020). The study practical implications for policy and practice include the following elements: First, to teach students with special educational needs in primary school settings successfully, it is important to empower teachers through comprehensive training. Opening up new opportunities for teachers to qualify academically in teaching students with special educational needs is important for successful inclusion programs (Knight, 2023).

Providing teachers with sufficient knowledge with respect to inclusive education is important. Moreover, engaging a new model of education concentrating on interactivity and active collaborative learning can have a positive influence on students' critical thinking. Therefore, Schools should also invest in the equipment and educational materials that can support students with special educational needs. The latter may require advocacy on part of the teachers and some administrative creativity. Schools and educational systems should commit to this ideal (Vaz, 2021). Additionally, this study will contribute to changing societal perceptions and increasing tolerance. This can be efficiently implemented through a range of sensitivity training for society in general, as well as for teachers and other students without disabilities in particular. (Telfer & Howley, 2020).

5. Conclusion

In conclusion, this study has revealed that 10% of the study participants exhibited a positive attitude, while 90% displayed a negative attitude. Additionally, factors such as perception that children with disabilities (CWDs) are unable to learn more rapidly in a general classroom, requiring special classroom settings, bringing shame to their families due to their disabilities, and needing to reside in special institutions were associated with a negative attitude towards inclusive society and education of CWDs.

Acknowledgements

The authors extend their appreciation to UNICEF and UPHLS for their coordination and support throughout the entire duration of this study, from its inception to its conclusion.

Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contribution

Each author played a substantial role in the development of this article. F.X.K., P.S., J.C.R., and C.N., N.O., M.M.D formulated the study concept. F.X.K., P.S., J.C.R. MF., EZ managed the project and provided

oversight for staff training. C.N. conducted the data analysis, while F.X.K., J.C.R., M.F., E.Z., supervised the manuscript and C.N. drafted the initial version. Subsequent revisions were collaboratively reviewed and discussed among F.X.K., J.C.R., and C.N. U.A., K.M.J.G., S.B., N.S., N.J.P., S.U., contributed to editing and finalizing the manuscript. All authors participated in reviewing and endorsing the final version of the manuscript.

Funding information

This research project fund and supported were provided by UNICEF and UPHLS.

Data availability

Data cannot be shared because it goes against ethical obligations and the privacy concerns of respondents.

Disclaimer

The opinions and perspectives presented in this article belong to the authors and have been reviewed and endorsed by Motivation. It should be noted that the findings and views expressed do not necessarily represent the official stance or policies of any other associated agency with the authors.

References:

- [1] Abbas A., Haruna H., Arrona-Palacios A., Camacho-Zuñiga C., Núñez-Daruich S., Enríquez de la O, J. F. (2022). Students' evaluations of teachers and recommendation based on course structure or teaching approaches: An empirical study based on the institutional dataset of student opinion survey. *Education and Information Technologies*, 2022. 1–16.
- [2] Ahmmmed M, Sharma U, &Deppeler J. (2018). Variables affecting teachers' attitudes towards inclusive education in Bangladesh. *J Res Spec Educ Needs*. 12(3):132–140.
- [3] Aron L, Loprest P. (2019). Disability and the education system. *Future Child*. Spring 2019;22(1):97–122.
- [4] Avramidis E, Norwich B. (2021). "Teacher's attitude towards integration/Inclusion: A review of the literature.". *Eur J Spec Needs Educ*. 17(2):129–147.
- [5] Babik I, Gardner ES. (2021) Factors Affecting the Perception of Disability: A Developmental Perspective. *Front Psychol*. Jun 21;12:702166. doi: 10.3389/fpsyg.2021.702166. PMID: 34234730; PMCID: PMC8255380.
- [6] Cambridge-Johnson J, Hunter-Johnson Y, Newton NG. (2019). Breaking the Silence of Mainstream Teachers' Attitude towards Inclusive Education in the Bahamas: High School Teachers' Perceptions. *Qualitative Report*. 19(42).
- [7] Chu S.-Y., & Garcia S. (2019). Culturally Responsive Teaching Efficacy Beliefs of In-Service Special Education Teachers. *Remedial and Special Education*, 35(4), 218–232.
- [8] Contreras D, Brante M, Espinoza S, Zuñiga I. (2020). The effect of the integration of students with special educational needs: Evidence from Chile. *Int J Educ Dev*. 74:102163.
- [9] Cook J.E., Purdie-Vaughns V., Meyer I.H., Busch J.T.A. (2018). Intervening within and across levels: A multilevel approach to stigma and public health. *Soc. Sci. Med*. 1982:101–109.
- [10] Fedulova I, Ivanova V, Atyukova O, Nosov V. (2019). Inclusive education as a basis for sustainable development of society. *J Soc Stud Educ Res*. 2;10(3):118–135.
- [11] Fedulova I, Ivanova V, Atyukova O, Nosov V. (2019). Inclusive education as a basis for sustainable development of society. *J Soc Stud Educ Res*. 2019. 2;10(3):118–135.
- [12] González-Cacho T., & Abbas A. (2021). Impact of Interactivity and Active Collaborative Learning on Students' Critical Thinking in Higher Education. *IEEE Revistalberoamericana de Tecnologías del Aprendizaje*. 17(3), 254–261.
- [13] Government of Rwanda (2017). National Education Policy. Kigali: MINEDUC
- [14] Griffin S, Shelvin M. (2019). Responding to Special Educational Needs: An Irish Perspective. Dublin: Gill and MacMillan.
- [15] Humanium (2017). Disabled children. London: Routledge
- [16] Karaca M.A., Toprak H.H. (2022). An Investigation of Social Acceptance Levels of Students with Typical Development toward Their Peers with Special Needs in Terms of Certain Variables. *Int. J. Mod. Educ. Stud*. 6:469–492.
- [17] Kart A.N., Kart M. (2021). Academic and Social Effects of Inclusion on Students without Disabilities: A Review of the Literature. *Educ. Sci*. 2021;11:16.
- [18] Knight C., Conn C., Crick T., Brooks S. (2023). Divergences in the framing of inclusive education across the UK: A four nations critical policy analysis. *Educ. Rev*. 2023:1–17.

- [19] Mbua E.M. (2023). Principal leadership: Raising the achievement of all learners in inclusive education. *Am. J. Educ. Pract.* 7:1–25.
- [20] Milanovic L., Bjelica B., & Cicovic V. (2020). Identifying Problems in Working with Children With Disabilities in the Educational Process-Inclusion of Children With Disabilities. London: Lancet
- [21] Monsen JJ, Ewing DL, Kwoka M. (2020). Teachers' attitudes towards inclusion, perceived adequacy of support and classroom learning environment. *Learn Environ Res.* 17(1):113–126.
- [22] Morin D, Rivard M, Crocker AG, Boursier CP, Caron J. (2020). Public attitudes towards intellectual disability: a multidimensional perspective attitudes on intellectual disabilities. *J Intellect Disabil Res.* 57(3):279–92.
- [23] National institute of statistic Rwanda (2023). Fifth Rwanda Population and Housing Census, 2022, RPHC5, Thematic Report: Socio-economic Characteristics of Persons with Disabilities. [file:///C:/Users/NsanzC01/Downloads/RPHC5%20Thematic%20Report_SocioEconomic%20Status%20of%20people%20with%20Disabilities%20\(1\)%20\(1\).pdf](file:///C:/Users/NsanzC01/Downloads/RPHC5%20Thematic%20Report_SocioEconomic%20Status%20of%20people%20with%20Disabilities%20(1)%20(1).pdf)
- [24] NCPD (2021). Annual Report. Kigali: NCPD
- [25] Olinger BL. (2018). Elementary teachers' perspectives of inclusion in the regular education classroom. *Electronic Theses and Dissertations.* Paper 1179.
- [26] Owusu Isaac., Acheampong E. Kwadwo Wisdom Mprah, Hashani Vampere. (2018). Factors Influencing Parents' Perceptions on the Education of Children with Disability in the Wa West District of Ghana, *INTERNATIONAL JOURNAL OF SPECIAL EDUCATION* Vol.33, No.3.
- [27] Shah, C. (2022). Prevention of Abandonment of Children with Special Needs Through Community-Based Programmes and Intervention. In: Deb, S. (eds) *Child Safety, Welfare and Well-being*. Springer, Singapore. https://doi.org/10.1007/978-981-16-9820-0_25
- [28] Sharma U, Chow EW. (2018). The attitudes of Hong Kong primary school principals toward integrated education. *Asia Pac Educ Rev.* 9(3):380–391.
- [29] Smythe T., Adelson J.D., Polack S. (2020). Systematic review of interventions for reducing stigma experienced by children with disabilities and their families in low- and middle-income countries: State of the evidence. *Trop. Med. Int. Health.* 25:508–524.
- [30] Sokal L, Sharma U. (2017). “Do I Really Need a Course to Learn to Teach Students with Disabilities? I’ve Been Doing It for Years.” *Can J Educ/RCE.* 40(4):739–760.
- [31] Sukbunpant S, Arthur-Kelly M, Dempsey I. (2018). Thai preschool teachers' views about inclusive education for young children with disabilities. *Int J Incl Educ.* 17(10):1106–1118.
- [32] Telfer D.M., Howley A. (2020). Pushing Against Persistent Structures and Comfortable Routines. In: Howley A., Faiella C.M., Kroeger S.D., Hansen B., editors. *Inclusive Education: A Systematic Perspective*. Information Age Publishing; Charlotte, NC, USA: pp. 3–20.
- [33] The Government of Rwanda (2007) Law no. 01/2007 of 20/01/2007 relating to protection of disabled persons in general. OG, special number of 21/05/2007
- [34] Thompson JR, Walker VL, Snodgrass MR, Nelson JA, Carpenter ME, Hagiwara M, et al. (2020). Planning Supports for Students with Intellectual Disability in General Education Classrooms. *Inclusion.* 8(1):27–42.
- [35] Tsakiridou H, Polyzopoulou K. (2019). Greek teachers' attitudes toward the inclusion of students with special educational needs. *Am J Educ Res.* 2(4):208–218.
- [36] Tsakiridou H, Polyzopoulou K. (2019). Greek teachers' attitudes toward the inclusion of students with special educational needs. *Am J Educ Res.* 2(4):208–218.
- [37] UNICEF (2021). The situation of the World's Children 2021 report. New York: UNICEF
- [38] UPHLS (2023). Mapping Data Report. Kigali: UPHLS
- [39] Vaz S, Wilson N, Falkmer M, Sim A, Scott M, Cordier R (2021). Factors associated with primary school teachers' attitudes towards the inclusion of students with disabilities. *PloS one.* 10(8).
- [40] Yide, A.H. (2019). Living conditions among people with activity limitations in Zimbabwe, Namibia, and Malawi: a representative regional survey. Oslo, SINTEF, available on <http://www.safod.org/Images/LCZimbabwe.pdf>, visited on 18 May 2024