



RESEARCH PAPER

A Road Map for the Access to and Inclusion in Education for Persons with Klinefelter Syndrome (Gender Disorder)

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ABSTRACT

It is not possible to achieve equality in society without the inclusion of the marginalized sector of society. The third gender, also is well-known as *Khwaja Sira* in South East Asia, is a chromosomal genetic disorder when a male child is born with an extra X chromosome, also known as 47XXY. This research project was designed to examine school principals' views on the barriers in access to education for persons with KS and the perceptions of persons with KS to get admission in regular schools of Pakistan. This project's objective was to develop a road map for access to and inclusion in education for persons with Klinefelter syndrome in the educational institute of Province Punjab. A quantitative research design was used to conduct this study. The researcher developed two separate questionnaires for school principals and persons with KS. 150 school principals were selected from regular and special schools of government and private sectors using a random sampling technique. 100 KS persons were chosen for the survey by using a cluster sampling method. Key findings revealed that the attitudinal barrier is still a significant barrier in access to educational opportunities perceived by school principals (mean=15.92) and persons with KS (mean=24.93). Based on the research conclusion, a road map was developed in the project, which suggests guidelines to stakeholders for accessible education for persons with Klinefelter syndrome.

Introduction

The genetic formation of the chromosomes determines an individual's gender identity, and it is certainly not in the hands of the parents or the children born. People born with gender disorder, intersex, or more commonly known as *Khwaja Sira* or *Hijra* in the subcontinent, are the most deprived segment of our society (Nagarajan & Karthikeyan, 2016). Klinefelter Syndrome is a genetic disorder that affects the male child by adding an extra X chromosome that affects the physical

features and genitals of the affected individuals (Bonomi, Rochira, Pasquali, & Balercia, 2017). It is a general perception that these persons cannot mingle or mix with other members of society. Therefore, they are deprived of fundamental rights such as family, home, and education ((Mathieson, Popay, Enoch, Escorel, & Hernandez, 2008; Foundation, 2016). They are disowned not just by society but by their parents and families. Suppose these persons with KS have access to education. In that case, they can lead better lives by getting respectable and white-collar jobs, and they can make productive contributions to society rather than just begging or dancing on the streets (Fazil, 2019).

Education is the fundamental right of every child born, Pakistan despite making several commitments with UNESCO and developing policies for creating equal opportunity in access to education for every individual in the country, has failed to fulfill its commitment. The persons with KS are not accepted in the schools due to society's pressure, and somehow, they are forced to opt for professions such as singing, dancing, and begging (Tabassum & Jamil, 2014). However, the situation is changing in the country. During the last decade, the government has taken specific steps to provide fundamental rights to these persons, such as registration in the National Database and issuing a transgender rights activist. At the beginning of 2019, a public sector transgender school was opened in Lodhran, undoubtedly a positive step but still discriminatory action. Introducing a parallel education system is like working against the policies and SDGs (Tribune, 2019). They should be enrolled in regular schools because it is undoubtedly impossible to open different universities and colleges to educate at a higher level. This initiative will indeed change the mindset of society and their attitude toward them. Extraordinarily little efforts and research have been carried out in this field, mainly focusing on including these children/persons in Pakistan's regular education system. Therefore, it is the hour's call to initiate an in-depth and thorough study in this regard. A platform should be established to include persons with gender disorder in regular schools to become part of society and, at later ages, join higher education and start a respectable professional life.

Literature Review

Klinefelter's Syndrome (Gender Disorder)

A typical male karyotype is 46 chromosomes with two sex chromosomes symbolically known as x and y. That is why a normal male karyotype is written and mentioned as 46XY. Some males develop extra x or y chromosomes in some cases, and that condition is known as Klinefelter syndrome ((Forti, Corona, Vignozzi, Krausz, & Maggi, 2010; Kaufman & Milstein, 2013). It was first identified by Harry Klinefelter and his colleagues in 1942. Research conducted by Plunkett and Barr in 1956 and Jacobs and Strong in 1959 supported and coined Klinefelter syndrome as a clinical chromosomal disorder and later came to be known as trisomy (Odom, Horner, Snell, & Blacher, 2007). One male out of 2500 has been estimated to be facing this disorder. The most common abnormality has been detected as 47xxy. However,

the continued research shows that in rare cases (10%-20% of all identified KLS disorders), the number of extra chromosomes carries from 47xxy to 48xxxxy or 48xxxy, or 49xxxxy (Peynirci&Erturk, 2013). It is a fact that the severity of the symptoms increases in contrast with the number of chromosomes. 47XXY patients, among other problems like infertility, small testicular size, decreased testosterone levels, Gynecomastia, and decreased penile length, show reduced IQ levels as well, which is problematic on an educational and social level (Peynirci&Erturk, 2013; Griffiths, 2018; NHS, 2019).

Inclusion in Education

Inclusive education is an initiative meant to make everyone possible, no matter how diverse their learning needs might be. Every child has a right to education, and the authorities should make it so that every child is provided with what they need to learn, including the children with special needs (Parua, 2019). Since most of the children suffering from 47XXY need additional effort to know since their condition makes it challenging for them to understand what is being taught, inclusive education is meant to help them get an education as generally as possible. Even if the educators and teachers may require training to cater to those kids' needs (UNESCO, 2018).

Pakistan Education Policy for Third Gender Persons

The third gender has been a forgotten minority for an exceptionally long time. In 2009 and 2012, the Supreme Court of Pakistan finally identified their existence. It provided them with the right to vote, gender selection on the national identity card, jobs as other citizens of Pakistan, and representation in the national assembly (Yusuf, 2019). Later, in May 2018, the Supreme Court passed another judgment to ensure that they are not discriminated against, harassed, and bullied in schools and have the right to proper education like other citizens of Pakistan. However, the authorities still have a lot to do to ensure that every third gender can learn in a non-hostile and supportive environment where they are not mocked neither ridiculed for being different (NA, 2018).

Pakistan Commitment to UNCRPD, SDGs, and Millennium Development goals

In 2014, the National Assembly of Pakistan initiated a long-term plan for sustained development growth for four years, starting from 2014 to 2018. By doing so, Pakistan became the first country to adopt SDGs before the rest of the world embraced them, and the United Nations and Commonwealth recognized it for it. This was extended to the year 2025 in 2015 (UNDP, 2019). By doing this, the National Assembly of Pakistan warranted an SDG task force intended to ensure that all the goals set till 2030 are achieved. Those goals included poverty alleviation, eliminating hunger, providing health and education for all (inclusive education for disabled), gender equality, clean water and energy, growth in the industry, innovation,

infrastructure, sustainable cities, responsible consumption and production, peace, justice, and strong institutions (National Assembly, 2015).

Pakistan Act on Transgender

The transgender person (protection of rights) Act 2018 confirms the fundamental rights of persons with KFS (transgender) who have equal rights to inheritance of property, education, vote, employment, hold public office, health, and access to public spaces and property (Hashim, 2018). The Act ensures that transgender people can enjoy all the rights granted by the constitution to the regular citizens of Pakistan (Shaikh & Tunio, 2018). During August 2018, the Punjab government's education department in Pakistan has announced its officials and schools to include transgender children in regular schools and passed on instructions to fit their gender/identity at the time of enrollment (Sheikh, 2018). Both public and private sector schools were bound to follow the instructions and give equal importance to KFS children (PakistanToday, 2017). In 2018, an outstanding bill was passed in the National assembly of Pakistan, which was meant to enable the third gender to have equal rights as any other citizen of Pakistan. The state will ensure that they are protected, have equal opportunities, be it may, sports, jobs, education, and even election (NA, 2018).

Intelligence Level in Persons with Klinefelter Syndrome

In general, most studies have shown that the mean cognitive ability in patients with KS falls in the average to a low average range (Kaufman & Milstein, 2013). According to several studies conducted in the past, the IQ level of persons with 47XXY shows that they have more tendency to have a lower IQ than other ordinary people (Van, Sonnevile, & Swaab, 2018). This affects them in many ways. They either have speech problems, slow or less efficient motor control function, weak sense of body balance, have trouble with spelling and recognition of characters and alphabets, reasoning, understanding the social cues, learning disabilities, they have a hard time being attentive or focused toward something, memory among other sensory issues. This makes education and social life incredibly challenging (Verri, Cremante, Clerici, Destefani, & Radicioni, 2010; Boada, Janusz, Hutaff-Lee, & Tartaglia, 2009).

In contrast to other disorders that appear from chromosomal trisomies, such as Down syndrome or Trisomy 18, the individuals with Klinefelter syndrome's overall cognitive ability is typically not in the range of intellectual disability (Verri, Cremante, Clerici, Destefani, & Radicioni, 2010). It is reported that approximately 70% of the persons with KS have minor developmental and learning disabilities that include academic difficulties, delay in speech and language, short term memory, diminished data retrieval skills, reading issues, dyslexia, or attention deficit disorder (Van, Sonnevile, & Swaab, 2018). It is quite interesting to note that a recent study conducted by Ross et al. (2008) showed no discrepancy between verbal and non-verbal reasoning skills even at the young age of individuals with KS. Various studies

on individuals with Klinefelter syndrome highlight some of the critical points: individuals with KS do not generally have the intellectual deficiency; some patients with KS also have a superior or above-average cognitive ability. However, such individuals' percentage is somewhat lower in the general population (Boada, Janusz, Hutaff-Lee, & Tartaglia, 2009).

Material and Methods

A quantitative research methodology was adopted to carry out this research study to include Ks individuals (transgender persons) in regular schools. This study aimed to identify the barriers to access to education and develop a road map for their inclusion in traditional schools. Keeping in view, the researcher has developed two separate survey questionnaires for school principals and persons with KS. Since the data set was extensive researcher has applied statistical tools to analyze the results of the data. For this purpose, SPSS software was used, and data were entered by using a coding scheme for both instruments separately.

Population and Sample of the Study

The research's targeted population included the school principals of special, normal (regular), and inclusive schools in the Punjab province to study the barriers in access to education of persons with (Ks) gender disorder. This study's second targeted population was persons with Klinefelter syndrome to understand their opinions and views on barriers to access to education. The researcher adopted a random sampling technique for selecting samples for study school principals in 35 cities of Punjab. The sample size for school principals was 150 participants, and survey forms were sent to 150 principals but received 128 filled forms. The researcher personally visited the schools to collect data for this study and conducted a telephonic survey due to the pandemic of COVID19.

On the other hand, a cluster sampling technique was applied for data collection from KS individuals. Data were collected in 5 different meetings arranged with the guru of KS persons. In each meeting, 20 persons with KS were called for the survey, and the researcher orally explained the purpose and content of the survey. The targeted sample size was 100 participants, and the return rate was 100% for this survey.

Table 1
The sample size of the study

Sample of the study		
1	School Principals	128
2	KS Individuals	100

Table 2
Demographic profile of school principals' sample

Sr. No.	Demographic profile of school principals				
1	Gender	Male = 31%		Female = 69%	
2	Age	25 to 45 years = 21.1%	35 to 45 years = 46.9%	45 to 55 years = 26.6%	55 years and above = 5.5%
3	Qualification	Graduate/B.Ed. = 57.8%	Masters = 33.6%	MPhil= 5.5%	PhD = 3.1%
4	Work experience	1 to 5 years = 14.8%	5 to 10 years = 50.8%	10 to 16 years = 25.8%	16 years and above = 8.5%
5	School type	Normal = 50%	Special =27%	Inclusive = 23%	

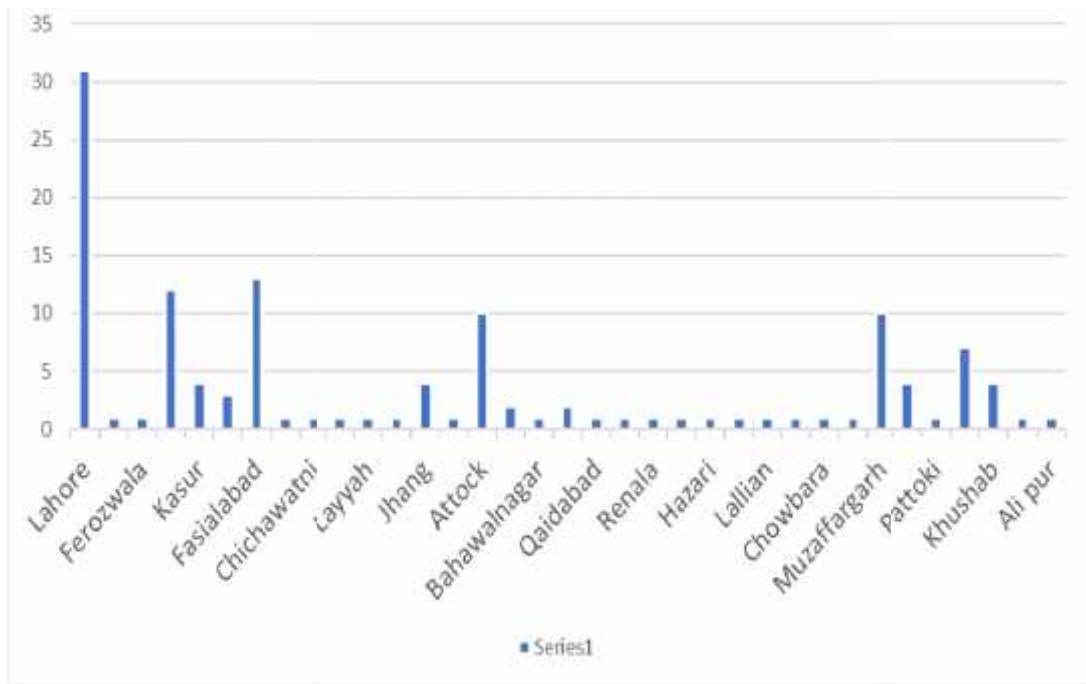


Figure 1: city-wise distribution of schools

Table 3
Demographic profile of KS individuals

Sr. No.	Demographic profile of KS persons					
1	Education	Illiterate = 86%	Up to primary = 12%	Up to Matric = 2%		
2	Occupation	Dancing = 39%	Begging = 54%	Barber = 3%	Makeup artist = 3%	Media person =1%

Data Collection and Research Instruments

Two separate survey instruments were developed for obtaining data: one from school principals of all three school types and others from individuals with Klinefelter syndrome. These instruments were developed based on literature review and secondary research. The questionnaires for both school principals and Klinefelter syndrome individuals were divided into two sections; the first section covered their demographic profile. The second section consists of statements to evaluate their perception of multiple variables such as Attitudinal barriers, cultural and social barriers, policy barriers, and resource barriers. Instruments were developed on Likert 5-point scale with the responses coded as (Strongly agree = 5, Agree = 4, Neutral/Undecided = 3, Disagree = 2, Strongly disagree = 1). Data were collected by obtaining permission and personally visiting the schools in Punjab and telephonic surveys. On the other hand, the researcher arranged several meetings with KS gurus and collected data from 100 persons with gender disorders. This survey ensured the participants' privacy and confidentiality, and their personal information is kept anonymous.

Data obtained from the school principals and persons with Klinefelter syndrome were entered into SPSS software with a coding scheme's help. After data entry was completed, the descriptive statistical tests were applied to get the results for barriers and problems in the access and inclusion of education of individuals with KS. The results of the data analysis were tabulated and interpreted in a report form.

Limitation of the Study

Following was the limitation of the study:

- Due to the unavailability of standardized instruments researcher has used self-made questionnaires for data collection; therefore, results may be generalized cautiously.

Delimitations of the Study

- This research study was only delimited to the 35 cities of Punjab province because of the limited resources and time.
- Initially, the study proposed to buy the intelligence test and carry out the intelligence test of 100 KS persons; however, due to the situation of COVID-19 researcher was not able to gather and conduct their intelligence test; therefore, only a survey was conducted to obtain their opinion and views for educational opportunities and hurdles.

Results and Discussion

Table 4
Frequency distribution of responses from school principals

Sr. No.	Statement	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>F</i>	%	<i>f</i>	%
1	You think individuals with Klinefelter Syndrome are different from other human beings.	12	9.4	45	35.2	59	46.1	12	9.4		
2	You think having gender disorder is a hurdle in leading an everyday life for persons with KS.	2	1.6	30	23.4	23	18.0	17	54.7	3	2.3
3	You think persons with Klinefelter syndrome cannot get an education.	66	51.5	54	42.2	8	6.3				
4	You think individuals with KS should be given equal opportunity for education.							79	61.7	49	38.3
5	You think they are mentally capable of getting an education.			12	9.4	14	10.9	50	39.1	52	40.6
6	You think other children will accept them in the classroom if they get admission in regular schools.			98	76.6			25	19.5	5	3.9

7	You think parents will accept the education of persons with KS with their children in regular schools.	10	7.8	88	68.8			23	18	7	5.5
8	You think KS individuals should go to special schools.	61	47.7	49	38.3	18	14.1				
9	You think schoolteachers will accept them in the classroom.	11	8.6	87	68.0			21	16.4	9	7.0
10	You think there should be separate schools for KS individuals.	16	12.5	82	64.1			20	15.6	10	7.8
11	You think they lack the resources to get admission in schools.	54	42.2	56	43.8	18	14.1				
12	Your school has the resources to include children with KS.							63	49.2	65	50.8
13	You think schools are following the policies of inclusive education.	53	41.4	57	44.5	18	14.1				
14	You think children with KS	3	2.3	9	7.0	14	10.9	43	33.6	59	46.1

	can be admitted to school after the training of school staff and teachers.										
15	You think children with KS can be admitted to school after the training of school staff and teachers	3	2.3	9	7.0	14	10.9	43	33.6	59	46.1
16	You think children with KS can be admitted to school after the training of school staff and teachers.	3	2.3	9	7.0	14	10.9	43	33.6	59	46.1
17	You think schools are following the policies of inclusive education.	53	41.4	57	44.5	18	14.1				
18	You think there is a need for a new policy for the adjustment of KS children in regular schools.							46	35.9	82	64.1
19	You think these children do not have access to education due to a lack of policy or policy implementation.							88	68.8	40	31.3

Key Findings

The majority of 46.1% of the principals were neutral or undecided for the statement you think individuals with Klinefelter syndrome are different from other human beings. Majority, 54.7% of the principals, agree that having gender disorder is a hurdle in leading a normal life. Majority 51.6% of the principals strongly disagree with the statement you think persons with Klinefelter syndrome cannot get an education. Majority 61.7% of the principals agree and 28.3% strongly agree with the statement you think individuals with KS should be given equal opportunity for education. The majority of 40.6% of the principals strongly agree with the statement you believe they are mentally capable of getting an education. The Bulk of 76.6% of the principals strongly disagrees with the statement you think other children will accept them in the classroom if they get admission to regular schools. The majority of 68.8% of the principals disagree with the statement you think parents will accept persons with KS with their children in regular schools. Many of the school principals disagree with the statement you think KS individuals should go to special schools. The majority of 68% of the school principals disagree with the statement you think schoolteachers will accept them in the classroom.

The majority of 64.1% of the school principals disagree with the statement you think there should be separate schools for KS individuals. Majority 43.8% of the school principals, disagree with the statement you think they lack resources to get admission to schools. 100% of the school principals agree with the statement your school has the resources to include children with KS. The majority of 85.9% of the school principals disagree with the statement you think schools follow the policies of inclusive education. The majority 79.7% of the school principals agree with the statement you think children with KS can be admitted to school after the training of school staff and teachers? A huge Majority 85.8% of the school principals disagree with the statement that schools are following inclusive education policies for the education of KS children in regular schools. 100% of the school principals agree with the statement you think there is a need for a new policy for the adjustment of KS children in regular schools?

Table 5
Independent Samples t-test

Is there any significant difference in school principals' views based on their gender about the inclusion of persons with Klinefelter in education?

Gender	N	Mean	t	Sig	Df	Mean difference
Female	89	48.31	-.564	.574	126	-.480
Male	39	48.79				

The table values ($t = -.564$, $sig = .574$ and $df = 126$) explain that there is no significant difference in school principals' views based on their gender about the inclusion of persons with Klinefelter in education. All principals, regardless of their gender, think alike about their access to and inclusion in education.

Table 6
Mean value for barriers in access to education perceived by school principals

Barriers to access education	Mean
Attitudinal barriers	15.92
Cultural and social barriers	11.49
Resource Barriers	10.76
Policy Barriers	10.36

The above table shows that the most common response for school principals' barriers was an attitudinal barrier with the highest mean value of 15.92; the next highest value is 11.49 for cultural and social barriers, 1067 for policy 10.36 for resource barriers.

Table 7
Frequency distribution of Persons with Klinefelter syndrome survey data
The second survey was conducted to know the views about educational opportunities and barriers perceived by persons with Klinefelter syndrome. The major findings are as follows.

Sr. No.	Statement	Strongly disagree		Disagree		Undecided		Agree		Strongly agree	
		<i>F</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>F</i>	%
1	You think you are like other people in society.	27	27.0	5	5.0	5	5.0	15	15.0	48	48.0
2	You think you should have an equal opportunity of getting an education.					15	15.0	43	43.0	42	42.0
3	You think you can become a better human after getting an education.	8	8.0	2	2.0	10	10.0	48	48.0	32	32.0
4	You think your identity is one of the biggest hurdles in getting an	4	4.0	10	10.0	20	20.0	32	32.0	34	34.0

	educational opportunity.										
5	You think the attitude of people is a hurdle in getting educational opportunities.	3	3.0	10	10.0	13	13.0	37	37.0	37	37.0
6	You think schools are ready to educate you.	52	52.0	34	34.0	14	14.0				
7	For you, problems of social adjustment are big hurdles in getting an education.	18	18.0	24	24.0	37	37.0	16	16.0	5	5.0
8	You think the attitude of normal children is a major hurdle in getting an education.	36	36.0	38	38.0	13	13.0	11	11.0	2	2.0
9	Your guru allows you to attend school.	32	32.0	22	22.0	19	19.0	11	11.0	16	16.0
10	You think a lack of educational opportunity is the biggest hurdle in getting an education.	46	46.0	33	44.0	14	14.0	5	5.0	2	2.0

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11	In your opinion poverty is the main reason for not getting educational opportunities.	25	25.0	32	32.0	22	22.0	17	17.0	4	4.0
12	Lack of material resources in schools is a major hindrance to not providing education to your community.	34	34.0	17	17.0	21	21.0	11	11.0	17	17.0
13	You think a lack of specific government educational policy is a reason for hindrance in getting an education.	46	46.0	17	17.0	3	3.0	8	8.0	16	16.0
14	You think the absence of government interest is a hurdle in creating educational opportunities for you.	16	16.0	24	24.0	26	26.0	24	24.0	10	10.0

The majority of 63% of persons with KS agree with the statement you think you are like other people in society. The majority of 43% of the persons with KS agree with the statement you think you should have an equal opportunity of getting an education. The heavy majority 80% of the persons with KS agree with the statement you think you can become a better human after getting an education. The majority of 66% of the persons with KS agree with the statement you think your identity is one of the biggest hurdles in getting an educational opportunity.

Majority 74% of the persons with KS agree with the statement you think people's attitude is a hurdle in getting educational opportunities. The majority of 86% of the persons with KS disagrees with the statement you think schools are ready to educate you. Less than half 42% of the persons with KS agree with the statement problems of social adjustment are big hurdles in getting the education. The majority of 74% of the persons with KS agree with the statement you think the attitude of normal children is a major hurdle in getting an education. Majority 54% of the persons with KS disagree with the statement your guru allows you to attend school. The majority of 79% of the persons with KS disagree with the statement you think a lack of educational opportunity is the biggest hurdle in getting an education. The majority of 57% of the persons with KS disagree with the statement in your opinion poverty is the main reason for not getting educational opportunities. The majority 51% of the persons with KS disagree with the statement lack of material resources in schools is a major hindrance to not providing education to our community. The majority of 63% of the persons with KS disagree with the statement you think a lack of specific government educational policy is a reason for hindering education. Less than half 40% of the persons with KS disagree with the statement you think the absence of government interest is a hurdle in creating educational opportunities for you.

Table 8

Lack of opportunities	Mean
Due to attitudinal problems	24.93
Due to a shortage of resources	6.87
Due to the absence of policy	5.19

The above table shows the mean value for the responses received for lack of educational opportunities. According to the above table majority, 24.93 of the KS participants stated that their education's biggest barrier is the altitudinal problem. 6.87% of the participants said it is mainly due to the lack of resources and 5.19% of the participants think it is because of the lack of appropriate government policy.

Conclusions

Major findings of the study indicate that most school principal's attitudinal barrier is the biggest hurdle in educational opportunities for persons with KS. This study concluded that it is not a matter of poverty or lack of resources that stops them from getting an education rather, it is the attitude of parents and society that stops them from going to regular schools. Although 100% of school principals agree that these individuals should not be included in special schools rather, they can get an education in regular schools. However, they believed that class teachers will not accept them. The study results also concluded that these children can be included in regular schools with the help of teacher and staff training. However, it is also noted that many of the school principals were of the view that schools are not following the government policies for inclusive education for persons with gender disorder. The study results also showed that school principals think that revision in policies and

policy implementation is required for bringing the change in society and making their inclusion possible in schools.

Based on finding this study also concluded that persons with KS perceive that their gender identity is one of the biggest challenges and problems in getting an education. Most of the persons with KS stated that it is the attitudinal issue which is causing hurdle in their knowledge. They believe that the government has developed policies for their inclusion in school however, these policies are not followed or implemented by the schools. In their opinion, schools have the resources to provide them education, but the attitude of unacceptance and biased views towards their disorder leads to discrimination.

This research study also aimed to find that if there is any significant difference in the views of school principals based on their gender. Results showed that there is no significant difference in the views of school principals based on their gender about the inclusion of persons with Klinefelter in education. All principals regardless of their gender think alike about their access to and inclusion in education. The study concludes that without the inclusion of these individuals in regular schools from their early childhood, it is not possible to make them useful and active members of society and there is a strong need to develop interventions to change society's attitude towards this community.

Roadmap for the inclusion of KS persons in regular schools

Persons with Klinefelter Syndrome are human beings and equal members of society. In our religion Islam, there are no other criteria to judge human beings on their physical and or genetic traits; the only criteria to discriminate among human beings is TAQWA, as Our Last Holy Prophet Hazrat Muhammad (Peace Be Upon Him) said in His last Sermon:

"All mankind is from Adam and Eve, an Arab has no superiority over a non-Arab nor a non-Arab has any superiority over an Arab; also a white has no superiority over black nor does a black have any superiority over white except by piety (Taqwa) and good action. Learn that every Muslim is a brother to every Muslim and that the Muslims constitute one brotherhood. Nothing should be legitimate to a Muslim who belongs to a fellow Muslim unless given freely and willingly. Do not, therefore, do injustice to yourselves." (Last Sermon of Holy Prophet, Al-Bukhari, *Hadith* 1623, 1626, 6361).

In Quran, Allah Subhan WaTalla says that He created man In His Own Image; hence human beings are Ashraf ul Mahkloqat and persons with Klinefelter syndrome are human and also Ashraf ul Mahkloqat. Therefore, they are entitled to have all kinds of similar rights, provisions, and facilities to live in any society. The above review of literature and data analysis suggests that it is only the company's attitude, which is unwilling to accept the persons with KS in the regular school

system and do not have any cognitive or intellectual disability to reason or get an education.

It is the government's responsibility to provide all kinds of human rights to its citizens regardless of their gender, caste, and creed.

The road map for access to education and inclusion is given here:

1. Early screening of (Klinefelter syndrome) gender disorder by involving health, special education, and social welfare departments
2. Identification of In-Reach and outreach cases with Klinefelter syndrome
3. Provision of Educational facilities and opportunities
 - Step 1= At primary Level in rural and urban areas of Province Punjab
 - Step 2= At Middle and Secondary Level
 - Step 3= Tertiary level
 - Step 4= Higher level
4. These educational opportunities can be provided on equal access as education is one of the fundamental rights of each individual but by keeping in mind the situation of financial and material resources of public and or private sector educational institutes may give them admission on reserved seats or quota but most appropriate is to give them admission on an equal basis on open merit.
5. School and curriculum reforms must improve the teaching-learning process and welcoming environment for all types of learners, especially with Klinefelter syndrome.
6. The implementation of Punjab Govt. Policy for transgender (Klinefelter syndrome) needs to be in force in the latter and sprites.
7. Ministries of Education and Special education need to develop policies on the inclusion of Klinefelter syndrome in the educational system of Province Punjab so that their rights can be promoted, protected, and ensured.
8. There is a need to make a strong partnership between the public and private sectors to support persons with Klinefelter in education. There are many NGOs of good repute who are offering formal and informal and professional education to persons with Klinefelter syndrome. This

partnership would help create awareness among other society members and persons with Klinefelter syndrome about their rights to education.

9. Media can play its full and effective role in creating awareness and change in society members' mindset and the persons with Klinefelter syndrome himself about their legal rights to education and equal access to all fundamental rights as being citizens of Pakistan.
10. To support the education of persons with KS, schools and parents can avail the facility of free books, uniforms, transport, and cash incentives provided by the Ministry of Special Education Punjab. Such measures can improve the school enrolment ratio of persons with KS and motivate their parents, guru, or guardians to send them to schools without taking any financial burden.
11. Teacher training and education on persons with KS will enhance their acceptance level and inclusion in regular schools. The government should train the teachers and arrange their meetings with persons with KS to understand their mental abilities and intelligence level like other society members.
12. An initiative of distance learning opportunities can also support the education of KS persons and provide the opportunity to enter higher education.
13. Governments, NGOs, and media need to play a substantial role in creating interventions to change society's mindset and attitude. This can be carried out by arranging campaigns and mass awareness programs for parents, families, and school staff for their inclusion in schools and creating acceptance for persons with KS in society as normal human beings.

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