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ORIGINAL PAPER

Accessibility and Utilization of Sexual and Reproductive Health Services among People with Disabilities in Nepal

Devendra Raj Singh[1,2] · Samita K.C[2] · Dev Ram Sunuwar[3] · Sarina Shrestha[2] · Rajeeb Kumar Sah[1] · Sushmita Ghimire[4] · Dan Bahadur Khadka[5] · Lalita Kumari Sah[6] · Jennifer Mathias Shah[7] · Kshitij Karki[2,8]

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Abstract

The study aims to assess the factors determining the access and utilization of sexual and reproductive health (SRH) services among people with disabilities residing in the Kathmandu Valley of Nepal. A cross-sectional study was conducted among randomly selected 422 people with disabilities in Kathmandu Valley. Data were collected through face-to-face interviews using structured questionnaires. Bivariate and multivariate logistic regression analyses were conducted. Among a total of 422 participants, 32.7% had utilized SRH-related education, information, and counselling services. Contraceptive-related services were utilized by 47.6% of participants, pregnancy-related services by 27.7%, safe abortion-related services by 13.0%, and HIV testing and treatment services by 3.6%. Likewise, 16.8% of participants utilized STI screening, diagnosis, and management services. Males were 2.5 times more likely to utilize SRH services compared to females (AOR = 2.5, 95% CI = 1.4-4.2), whereas unmarried participants were less likely to utilize SRH services as compared to single/separated/divorced (AOR = 0.2, 95% CI = 0.0-0.5). Similarly, participants who were living with their families compared to those living alone (AOR = 3.4, 95% CI = 1.4-7.7), and participants who were unemployed compared to employed (AOR = 1.8, 95% CI = 1.0-3.5) had higher odds for utilization of SRH services. There are significant variations depending on the intersections of various characteristics affecting the utilization rate across different SRH services among people with disabilities. Contraceptive-related services were the most utilized service, whereas safe abortion, pregnancy related services, STI screening and management services and HIV testing and treatment services were less utilized services.

Keywords People with disability · Sexual and reproductive health · Health services · Access · Utilization · Nepal

Abbreviations

AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio

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HIV	Human immunodeficiency virus
ID	Identity Card
LMICs	Low- and Middle-Income Counties
PWD	People with Disability
SDGs	Sustainable Development Goals
SD	Standard Deviation
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health Rights
STI	Sexually Transmitted Infection

Introduction

Sexual and reproductive health (SRH) is one of the essential components of the global health agenda as it significantly influences individuals, families, communities, and nations worldwide [1, 2]. Access to sexual and reproductive health services is recognized as a fundamental human right and is crucial if we are to achieve universal access to SRH services to meet the Sustainable Development Goals (SDGs) by 2030 [3, 4]. This acknowledgement reflects the increasing consensus among the United Nations member countries on the importance of sexual and reproductive health and rights (SRHR) for all population groups, including people with disabilities [3, 4]. Despite global commitments and agreements on SRH, many women and men continue to have unmet SRH needs [4–6]. The availability of SRH services is still significantly inadequate for people with disabilities, especially in low-and middle-income countries (LMICs) [7]. The sexual and reproductive health services include a wide range of services, including SRH-related information, education and counselling, contraceptive services, pregnancy-related services, safe abortion care, and sexually transmitted infections (STIs) screening, diagnosis and management services, including Human immunodeficiency virus (HIV) testing and treatment services [8]. Individuals with disabilities are vulnerable and often face several challenges while exercising their SRHR [9].

The United Nations define people with disability (PWD) as *"Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others"* [10]. The World Health Organization estimates that about 16% of the world's population live with some form of disability and possess equal SRH needs and rights as the general population [11]. However, several studies conducted in LMICs demonstrated that there is low access and poor utilization of sexual and reproductive health (SRH) services, resulting in poor SRH outcomes among PWD [12–14]. They continue to face several barriers to receiving SRH services, including physical accessibility issues, healthcare services that are insensitive to their needs, and unfavorable attitudes towards PWD among medical professionals and community members [12, 13, 15, 16]. Furthermore, there is a notable inadequacy of effective interventions to enable access to SRH services in resource-poor settings where a significant proportion of vulnerable populations, including PWD, reside [14]. Despite a higher need for SRH services among PWD, they often encounter numerous obstacles in accessing SRH, not only due to their disabilities but also due to the lack of societal attention, legal protection, family support, and poor understanding of their SRH needs from concern stakeholders [4, 17–19]. Goethals and colleagues

highlight the need for an intersectional approach to understanding the holistic experiences and varied perspectives of PWD [20]. Although intersectionality is rooted in the theory of Black Feminism, where Kimberle Crenshaw in 1989 coined the term intersectionality to describe the intersections of race, gender and other individual characteristics leading to multiple marginalization [21], the intersectional framework can be used to explain how disability intersects with complex and interwoven social categories, multiple identities and positionalities, contributing towards marginalization in accessing SRH services [21]Intersectionality is increasingly used as an analytical tool to focus and explain the intersections of disability in Nepal with various other categories and their impact leading to the marginalization of PWD [22, 23].

Nepal is one of the low- and middle-income countries with fragile healthcare systems; individuals with disabilities face multiple difficulties in accessing SRH services [18, 24]. The most recent National Population Census Report – 2021 depicted that a total of 654,782 people live with at least one type of disability in Nepal, which accounts for 2.2% of th national population of Nepal [25]. Reproductive health services are particularly challenging to access due to cultural beliefs, social taboos, stigma, physical barriers, inadequate family support and financial constraints [17, 26]. The Nepalese government has made efforts to address disability rights by implementing various provisions such as monthly allowances and benefits based on disability severity [27–29]. In addition, the government has issued disability identity cards required to claim benefits such as free education, allocated seats on educational scholarships and civil service jobs, benefits on transportation services, free medical services, and exemptions from income tax [28, 29]. However, despite the National Guidelines for Disability Inclusive Health Services in Nepal, there are still significant obstacles to providing adequate healthcare due to a lack of disability-friendly services, realistic interventions and insufficient resources [30]. The existing evidence demonstrated that people with disabilities encounter individual, societal and systemic levels obstacles when accessing and using sexual and reproductive health services [17, 18, 30]. Nepalese women with disabilities, who are further marginalized in Nepalese society, face multiple and complex social and institutional barriers while seeking SRH services [17, 30–32]. However, there is limited research to understand factors that are linked to the poor access and utilization of SRH services among people with disabilities in Nepal. This study intends to fill this knowledge gap, which will offer valuable insights that can inform concerned stakeholders and policymakers at different levels in the new federal health governance structures to address the SRH needs and rights of PWDs in Nepal. Therefore, this study aims to identify the factors determining the access and utilization of sexual and reproductive health services among PWDs residing in the Kathmandu Valley of Nepal.

Methods

Study Design and Settings

A cross-sectional study was conducted among people living with disabilities in Kathmandu Valley, the capital city of Nepal, between July 2019 and March 2020. The Kathmandu Valley (constituted of Kathmandu, Lalitpur and Bhaktapur districts) has about three million residents from diverse ethnic and socio-cultural backgrounds. It has a population density

of 5,196 per square Kilometre [25]. The total number of officially registered people with a disability living in Kathmandu Valley at the time of the study was 25,260. However, the actual numbers are expected to be much higher than what is reported [25, 28]. The study sites were purposively selected because of their greater population diversity and relatively higher number of people with a disability residing in the study areas, which can better represent the study population.

Sample size and Sampling Procedure

The calculated sample of 442 was obtained by using the formula for the single proportion sample: n=Z2pq/e2 [33]considering the 95% confidence interval (CI), 50% assumed proportion(p) and 5% margin of error (e) and non-response rate of 15%.

The systematic random proportionate-to-size sampling method was used to select the sample size for the study. First, the list of people with disabilities was obtained from the local organizations registered in the respective districts (Kathmandu, Bhaktapur and Lalitpur districts). Secondly, the required sample size based on proportion to size was obtained from the respective districts using the systematic random sampling method. Finally, the systematic random number was generated in an MS Excel sheet from each district's participants list. The participants in the study included those who were 20 years and above and could participate in the interview process. The participants who had serious illnesses and could not provide interviews during the home visit were not included in the study.

Data Collection and Variables

Data were collected by conducting face-to-face structured interviews using structured questionnaires. We collected the participant's information on socio-demographic characteristics, disability status, sexual and reproductive health-related characteristics of participants, awareness and information about different sexual health services, and access and utilization of SRH services. We developed the questionnaire based on the relevant literature from previous studies [18, 19, 34]. The tools were developed in English language and further translated into Nepali language. The back translation to English language of the tool was done to ensure originality and consistency of the contents in the tool. The tools were also pretested in a similar population, and necessary modifications were done before using them for final data collection. The pre-tested data was not included in the final data set of the study. The data enumerators were public health undergraduates. The enumerators were provided three days of training on the study objective, data collection procedure, sample selection, tools, ethical aspects of research, and data handling techniques. Approximately 45–60 min were required to complete an interview with each participant.

Outcome Variables

The outcome variable of interest was the utilization of sexual and reproductive health (SRH) services among people living with any form of disability. The sexual and reproductive health services utilization in this study refers to the utilization of any SRH services such as SRH-related information, education and counselling, contraceptive services, pregnancy-related services, HIV testing service, sexually transmitted infections (STIs) screening, diagnosis,

and management services and safe abortion care. The utilization of SRH services among participants was measured based on self-reported responses (Yes/No) for each SRH service mentioned above. In addition, the utilization of at least one SRH service, either in government or private health facilities, was considered an SRH service utilized among participants.

Data Analysis

The data were entered into EpiData software v3.1 [35], and data analysis was performed using IBM SPSS Version 28 [36]. The descriptive findings were presented in terms of frequency, percentage, mean and standard deviation (SD). In addition, bivariate and multivariate logistic regression were conducted to assess the determinants of SRH services utilization. The independent variables that were significant in the unadjusted model were accounted for and adjusted for in the adjusted model. The statistical significance was considered at a p-value < 0.05, with a 95% confidence interval (CI) for all analyses in the study.

Ethical Considerations

The ethical approval for the study was obtained from the National Ethical Review Board at the Nepal Health Research Council (Regd.no:443/2019). Formal approval was also obtained from the local organization, which provided the list of people with disabilities in the respective areas and access to the study participants. Informed written consent was obtained from all the participants prior to the interview. They were fully informed about voluntary participation in the study and had the right to withdraw at any stage of the study process before data analysis. They were assured about the confidentiality and privacy of their personal information.

Results

Socio-demographic and Disability Characteristics of Study Participants

Out of 442 participants approached for the interview, a total of 422 respondents successfully completed the interviews, resulting in a response rate of 95.4%. The socio-demographic and disability characteristics of the study participants ($N=422$) are described in Table 1. The respondents' average age was 31.08 (SD ± 8.3) years, with the majority belonging to the age group 25–29 years (20.9%), followed by the age group 30–34 years (19.9%). Of the total, 63.7% were male, and 61.4% followed Hinduism. Most participants (42.2%) belonged to the Newars/ Janajati ethnicity, and more than half (52.6%) were married. Likewise, more than half of the respondents (53.8%) came from a nuclear family. Nearly half of those surveyed (48.1%) lived with their families, while 11.6% lived alone. More than one-third (36.5%) had a secondary level of education; however, 16.6% were illiterate. About two-thirds (64.2%) of the participants were not engaged in any occupation.

In terms of disability characteristics, a higher proportion (95.3%) of the respondents were physically disabled, which was followed by visual disability (4%) and multiple disabilities (0.7%). It was found that 8.5% did not possess a disability ID card, and more than half (54.9%) had a blue disability card (severe disability), followed by a yellow card (26.2%),

Table 1 Socio-demographic and disability characteristics of the study participants

Variables	Category	Frequency	Percentage (n=422)
Age group in years	Below 20	44	10.4
	20–24	61	14.5
	25–29	88	20.9
	30–34	84	19.9
	35–39	59	14.0
	40–44	46	10.9
	Above 45	40	9.5
Mean ±(SD) age in years	Mean age = 31.08 ± 8.376		
Gender	Male	269	63.7
	Female	153	36.3
Religion	Hindu	259	61.4
	Buddhist	60	14.2
	Christian	86	20.4
	Muslim and others	17	4.0
Ethnicity	Brahmin/Chettri	158	37.4
	Newar/Janajati	178	42.2
	Dalits	49	11.6
	Madhesi castes and other minorities	37	8.7
Marital status	Married	222	52.6
	Unmarried	157	37.2
	Single/ Separated/Divorced	43	10.2
Family type	Nuclear	227	53.8
	Joint/Extended	172	40.8
	Living alone	23	5.5
Living arrangement	Institution	170	40.3
	With family	203	48.1
	Living alone	49	11.6
Educational status	Illiterate	70	16.6
	Primary level	169	40.0
	Secondary level	154	36.5
	University level	29	6.9
Employment	Yes	151	35.8
	No	271	64.2
Type of disability	Physical disability	402	95.3
	Visual disability	17	4.0
	Multiple disability	3	0.7
Holding a disability card	Yes	386	91.5
	No	36	8.5
Color of disability card (N=386)	Red	70	18.1
	Blue	212	54.9
	Yellow	101	26.2
	White	3	0.8
Period of disabilities experienced	Less than 10 years	270	64.0
	10 to 19 years	95	22.5
	20 years and above	57	13.5

Table 1 (continued)

Variables	Category	Frequency	Percentage (n=422)
Mean years of disabilities experienced ± (SD)	10.35±6.814		
Age (years) at disability identified	Less than 10 years	34	8.1
	10 to 19 years	143	33.9
	20 years and above	245	58.1
Mean age of disability experienced ± (SD)	20.74±7.502		

Table 2 Sexual and reproductive health-related characteristics of participants

Variables	Category	Frequency	Percentage
Ever experienced SRH related problem	Yes	119	28.2
	No	303	71.8
Sexual partner	One partner	222	52.6
	Multiple partners	49	11.6
	No partner	151	35.7
Exposed to SRH promotion program	Yes	154	36.5
	No	268	63.5
Perceived risk of SRH problems	Yes	300	71.1
	No	122	28.9
Heard about free health services for people with disability	Yes	301	71.3
	No	121	28.7
Preference to types of health facility for SRH services	Government health facility	252	59.7
	Private health facility	170	40.3

signifying moderate disability and a red card (18.1%) indicating profound disability. More than half (64%) of participants had disabilities of less than ten years. The majority (58.1%) of the respondents explained their age of disability after the age of 19 years, and the mean age of disability experienced was 20.74 years.

Sexual and Reproductive health-related Characteristics of Participants

Table 2 explains the information regarding sexual and reproductive health characteristics of the respondents. Of 422 respondents, 28.2% shared that they had ever experienced an SRH-related problem, whereas the majority (71.8%) did not. More than half of the sample (52.6%) did not have a sexual partner, while 35.7% stated having one partner, and 11.6% had multiple sexual partners. Most participants (63.5%) claimed they were not exposed to any SRH promotion program. A significant proportion of the sample (71.1%) perceived a risk of SRH problems. Most participants (71.3%) reported that they had heard of free health services for people with disabilities, while the remaining 28.7% had not. Regarding their preferences for health facilities for SRH services, 252 (59.7%) chose government facilities, while the remaining 40.3% preferred private facilities.

Awareness and Information about Different Sexual Health Services among the Participants

Table 3 presents the results on awareness and information about different sexual health services among 422 respondents. More than half of the respondents (53.3%) were aware of sexual and reproductive health (SRH) information, education, and counselling services, while 90.8% had awareness of contraceptive methods. Pregnancy-related health services were known to 57.6% of participants. A little over half of the participants (56.4%) were unaware of HIV testing and treatment services, and 44.1% were aware of STI screening, diagnosis, and management services. On the other hand, 60.9% were unaware of safe abortion services. The participants were also asked about the sources of information they used to know about SRH services. The most commonly used sources were television/radio (78.5%) and the internet (77.0%), followed by education institutions (33.9%) and friends/family (32.7%). Health workers were the least used source of information (16.4%). Most participants (86.0%) perceived SRH-related information as important for people with disabilities.

Utilization of SRH Services among the Participants

Table 4 presents the results related to the utilization of various SRH services among the study participants. Out of 422, 32.7% of participants utilized SRH-related education, infor-

Table 3 Awareness and information about different sexual health services among the participants

Items	Category	Frequency	Percentage
Awareness about types of SRH services			
Availability of SRH-related information, education and counselling services	Yes	225	53.3
	No	197	46.7
Contraceptive methods	Yes	383	90.8
	No	39	9.2
Pregnancy-related health services	Yes	243	57.6
	No	179	42.4
HIV testing and treatment services	Yes	184	43.6
	No	238	56.4
Sexually transmitted infections (STIs) screening, diagnosis, and management services	Yes	186	44.1
	No	236	55.9
Safe abortion services	Yes	165	39.1
	No	257	60.9
SRH related information			
Source of information regarding SRH services*	Television/Radio	259	78.5
	Internet sources	254	77.0
	Health workers	54	16.4
	Education institution	112	33.9
	Friends/family	108	32.7
	Social media	44	13.3
	Others	23	7.0
Perceived SRH related information as important for people living with disability	Yes	363	86.0
	No	59	14.0

*Multiple responses

Table 4 Utilization of SRH services among the participants

SRH Services utilization	Frequency	Percentage
SRH related education, information and counseling	138	32.7
Contraceptives related services	201	47.6
Pregnancy-related services	117	27.7
Safe abortion related services	55	13.0
HIV testing and treatment services	15	3.6
STIs screening, diagnosis, and management services	71	16.8
Utilization of at least one SRH-related health services	307	72.7

Table 5 Different issues experienced while accessing SRH services among the participants

Various issues experienced	Frequency	Percentage
Mobility problem due to disability characteristics	170	40.3
Unable to communicate SRH problem to health personnel	143	33.9
Hesitation in sharing the SRH problem with health personnel	194	46.0
Lack of privacy and confidentiality at health facility	253	60.0
Limited of family support	314	74.4
Lack of disability friendly infrastructure	362	85.8
Financial constraints in accessing SRH services	249	59.0
Long distance as a problem to reach the health facility	162	38.4
Poor satisfaction with behavior of health personnel	141	33.4

mation, and counselling services. Contraceptive-related services were utilized by 47.6% of participants, while pregnancy-related services were used by 27.7% of participants. Safe abortion-related services were utilized by 13.0%, and only about 3.6% utilized HIV testing and treatment services. STI screening, diagnosis, and management services were utilized by 16.8% of participants. It is worth noting that there are significant variations in the utilization rate across different SRH services, with contraceptive-related services being the most utilized and HIV testing and treatment services being the least utilized. Since the utilization of at least one SRH service was considered as SRH service utilization, 72.7% was the proportion of the people with disabilities utilizing at least one SRH service at some point in the past.

Different Issues Experienced while Accessing SRH Services among the Participants

Table 5 presents results on various challenges related to sexual and reproductive health (SRH) and disability characteristics that the study participants faced while accessing the SRH services. Forty-three per cent of the respondents reported mobility problems caused by their disability characteristics. About one-third of the participants (33.9%) were unable to communicate their SRH problems to healthcare professionals. Additionally, 46.0% of participants feel hesitation in sharing their SRH problems with healthcare personnel. A lack of privacy and confidentiality at health facilities was explained by 60.0% of participants. Limited family support was a challenge faced by 74.4% of participants. The absence of disability–friendly infrastructure was a challenge faced by 85.8% of participants. Financial constraints in accessing SRH services were a concern for 59.0% of participants, and 38.4% of participants had to travel long distances to access the health facility. Finally, poor sat-

isfaction with the behaviour of health personnel was reported by one-third (33.4%) of the participants.

Determining Factors for SRH Services Utilization among People Living with Disabilities in Nepal

Table 6 shows the determinants for the utilization of sexual and reproductive health (SRH) services among people with disabilities in Nepal. In bivariate analysis, gender, marital status, living arrangement, employment status, holding a disability card, perceived risk of SRH, heard about free SRH services, ever experienced SRH-related disease and aware of SRH-related IEC (Information, education and communication) were significantly associated with service utilization by people with disability. The variables such as ethnicity, education status, exposure to SRH health programs, and types of preference for health facilities had no significant association with SRH service utilization by people with disability.

In multivariate logistic regression analysis, the variables such as gender, marital status, living arrangement and employment status were statistically and significantly associated with the SRH service utilization by people with disability. The result showed that male participants were 2.5 times more likely to utilize SRH services than female participants (AOR = 2.5, 95% CI = 1.4–4.2). The unmarried participants were less likely to utilize SRH services as compared to single/separated/divorced (AOR = 0.2, 95% CI = 0.00-0.5). The participants living with their families were 3.4 times more likely to utilize SRH services than those living alone (AOR = 3.4, 95% CI = 1.4–7.7). Compared to the participants with employment, unemployed participants have higher odds (AOR = 1.8, 95% CI = 1.0-3.5) for SRH service utilization.

Discussion

This study assessed the access and utilization of sexual and reproductive health services among people living with disabilities in the Kathmandu Valley of Nepal. The SRH services utilization by people living with disability was significantly associated with various factors such as gender, marital status, living arrangement and employment status. Although these factors alone can act as a barrier to accessing SRH services for PWD, the intersection of multiple factors further marginalises and excludes people with disabilities, affecting their utilization of the SRH services. Intersectionality is an analytical tool that acknowledges multiple identities of an individual and helps to understand their various experiences of advantages and disadvantages [37]. In this research, PWD experienced disadvantages because of their gender, with less than one-third (29%) of women with disabilities ever utilizing any SRH services. The findings indicate low SRH services utilization by women compared to men living with disabilities. This study resonates with findings from a similar study conducted in Eastern Nepal, which reported that women with disabilities had poor access to sexual and reproductive services [18]. Our result is also consistent with previous studies that indicated a low percentage (20%) of service utilization by women with disabilities in a study conducted in Cameroon [19]. However, there are a limited number of studies in this area. This draws attention to the differences between men and women and people with disabilities with the social constraints, exploitation, and inferior status of women in Nepali society [26,

Table 6 Bivariate and multivariate logistic regression for the factors associated with the SRH service utilisation among people living with disability in Nepal

Variables		SRH services utilization		Bivariate analysis	Multivariate analysis
		Yes (307) *n*(%)	No (115) *n*(%)	COR (95% CI)	AOR (95% CI)
Gender	Female	89(29.0)	64(55.7)	Reference	Reference
	Male	218(71.0)	51(44.3)	3.0(1.9–4.7) *	2.5(1.4–4.2)*
Ethnicity	Brahmin/Chettri	114(37.1)	44(38.3)	Reference	-
	Newar/Janajati	35(11.4)	14(12.2)	0.9(0.5–1.4)	-
	Dalits/Madhesi Castes/ others	158(51.5)	57(49.6)	0.9(0.4–1.7)	-
Marital status	Married	190(61.9)	32(27.8)	2.2(1.0-4.9) *	1.1(0.4–2.7)
	Unmarried	86(28.0)	71(61.7)	0.4(0.2–0.98)	0.2(0.0-0.5)*
	Single/ Separated/ Divorced	31(10.1)	12(10.4)	Reference	Reference
Living arrangement	Institution	106(34.5)	64(55.7)	0.9(0.4–1.8)	1.2(0.5–2.8)
	With family	170(55.5)	33(28.7)	2.9(1.5–5.9) *	3.4(1.4–7.7)*
	Living alone	31(10.1)	18(15.7)	Reference	Reference
Educational status	Illiterate	51(16.6)	19(16.5)	0.8(0.5–1.4)	-
	Primary level	121(39.4)	48(41.7)	0.9(0.5–1.7)	-
	Secondary level and above	135(44.0)	48(41.7)	Reference	-
Employment status	Employed	127(41.4)	24(20.9)	Reference	Reference
	Not employed	180(58.6)	91(79.1)	2.6(1.6–4.4) *	1.8(1.0-3.5)*
Holding a disability card	No	21(6.8)	15(13.0)	Reference	Reference
	Yes	286(93.2)	100(87.0)	2.0(1.0-4.1) *	1.5(0.6–3.6)
Perceived risk of SRH	No	69(22.5)	53(46.1)	Reference	Reference
	Yes	238(77.5)	62(53.9)	2.9(1.8–4.6) *	3.9(2.1–7.3)
Exposed to SRH health program	No	191(62.2)	77(67.0)	Reference	-
	Yes	116(37.8)	38(33.0)	1.2(0.7–1.9)	-
Heard about free SRH services	No	72(23.5)	49(42.6)	Ref	Reference
	Yes	235(76.5)	66(57.4)	2.4(1.5–3.8) *	1.2(0.6–2.2)
Ever experienced SRH related diseases	No	212(69.1)	92(80.0)	Reference	Reference
	Yes	95(30.9)	23(20.0)	1.7(1.0–3.0) *	1.6(0.8-3.0)
Type of preference for health facility	Private	117(38.1)	53(46.1)	Reference	-
	Public	190(61.9)	62(53.9)	0.7(0.4–1.1)	-
Aware about SRH related IEC	No	128(41.7)	69(60.0)	Reference	
	Yes	179(58.3)	46(40.0)	2.0(1.3–3.2) *	0.9(0.4–1.7)

* Significant odds ratio at *p*-value less than 0.05; CI: Confidence Interval; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio. A single logistic regression model was run adjusting for the variables significant in the unadjusted model; included all variables shown in this table

38]. Women who have disabilities face several obstacles originating from their families, society and the health system as a whole in different facets of their sexual and reproductive health experiences, including pregnancy, childbirth and motherhood period [6, 17]. This may be due to the unfavourable socioeconomic circumstance among people with disabilities that limits the autonomy of decision-making about their health and limited awareness about their sexual health rights, particularly in resource-poor settings [18, 26]. Moreover,

in the context of Nepal, stigmatization and deeply rooted socio-cultural attitudes towards sexuality may hinder open dialogue and education on sexual health topics and reluctance to seek SRH services [39–41]. Moreover, persistent gender inequalities further compound these challenges, limiting the autonomy and access to resources for women with disability [40, 42]. Tackling these complex social and structural issues requires integrated approaches with wider stakeholder engagement for developing practical solutions that improve healthcare infrastructure, challenge societal norms, combat stigma, and promote gender equality and comprehensive sexual health education [43]. In addition, in Nepal, PWD requires their disability identity card (ID) card to claim their benefits and rights [27, 29]. However, a significant number of eligible PWDs still have not received their disability ID card [27, 44]. This may be due to a lack of information about administrative procedures among PWD, poor awareness of the policy provision among PWD, administrative hassle or lack of support from authorities, which also restricts them from using free services at government institutions [27, 44].

Similarly, the intersection of poverty, education and gender further marginalized and excluded the participants from accessing and utilizing the SRH services. Our findings provide evidence that employment status influences the utilization of SRH services. It is not surprising that the educational level, employment opportunities, and income of people living with disabilities are likely to be lower than those of the general population. These results are consistent with several studies that showed the attribution of economic status to women living with a disability [19, 45]. The reduced SRH services utilization was found to be mediated by lower education levels and limited lifetime work opportunities among people with disabilities [18, 19]. Similarly, another study depicted that women with impairments have greater unemployment rates and lower-paying jobs, facing discrimination and stigma [17]. This often happens in the community due to inadequate awareness of the potentialities of differently abled people. Such inaccurate generalization leads to rejection, discrimination, and exclusion of PWD in different circumstances [17]. Access to health care is often challenging in areas with limited resources where services are not provided for free, which could exacerbate inequality [45]. Although intersectionality helps to understand different experiences of marginalization through qualitative exploration of their perspectives based on multiple identities of the individual [46] the findings from this cross-sectional study indicate the need for further research. Given that there appears to be a complicated interplay between poverty, disability, and gender, further research is needed to understand how these traits intersect to affect people living with disabilities.

Our study disclosed that living arrangements and marital status were also associated with the SRH service utilization by people with disabilities. Lack of disability-friendly infrastructure, limited family support, lack of privacy and confidentiality at health facilities, and financial constraints in accessing SRH services were the major issues experienced while accessing SRH services among the participants. The study findings are comparable to the barriers to receiving healthcare services for people with disabilities in developing countries where inaccessible facilities, limited mobility, stigmatization and staff attitudes were listed as key barriers [6, 17–19]. There is a strong negative social norm related to the health care-seeking behaviour of individuals on sexual and reproductive health in the Nepalese society, where unmarried females or males seeking sexual and reproductive health services are viewed with suspicion and belief of breaking the socio-cultural norms [17, 21, 47]. These factors might have contributed to a higher utilization of health-seeking behav-

iour on SRH services only among married participants. Given its understudied standing, there remains considerable work to be done to improve access and utilization of SRH for women with disability in the context of Nepal. Nepal has National Guidelines for Disability Inclusive Health Services [28], which guides mainstream disability inclusion in health service delivery, focusing on providing disability-inclusive health services to the general population. However, the weak implementation in different sectors seems to create barriers to access and utilization of health services among people living with disabilities in Nepal. To strengthen the service delivery to PWD, healthcare providers should receive adequate training related to disability awareness, inclusivity, and the specific needs of women with disabilities. Also, the study findings revealed that people who had awareness or had experienced SRH issues were the ones to utilize the service; therefore, government and healthcare organizations could focus more on improving awareness about the rights and needs of PWD in relation to SRH. Such campaigns could help reduce stigma, challenge discriminatory attitudes, and promote inclusivity in healthcare services.

Limitations and Strengths

The study is subject to several restrictions. The cross-sectional study design limits the strength of causal inference. The study was conducted among people with disabilities who were above 20 years of age and living in urban settings. Therefore, the results may not represent those living in rural areas or those below 20 years of age. Since this group of people were often marginalized in different circumstances and struggled to raise their voices, therefore their responses collected in this study may not be free of personal and demand bias. Also, the study sample was selected from the registered list of people with disabilities; the list may not have completely included all the populations of disabilities in the study areas. Therefore, the generalisability of the results from this study needs to be considered, along with this limitation. Despite the mentioned limitations, our study offers several strengths. This study has made efforts to highlight the several barriers PWD faces to accessing and utilizing SRH services. Further, the study has provided first-hand evidence from a sample repressing diverse ethnic, cultural and socio-economic backgrounds. These results can support planning for effective interventions, considering intersections of various factors leading to marginalization, that can increase access to SRH services and lessen issues with SRH utilization for those living with disabilities. It would also ensure the provision of disability inclusive SRH services in health facilities in Nepal. Further, the study explicitly indicates the need for adequate qualitative exploration of the challenges and barriers contributing to unequal access to sexual and reproductive health services among people living with disabilities in Nepal.

Conclusion

The study elucidated that although the majority of the participants utilized at least one SRH service at some point of time in the past, the utilization of specific services such as SRH-related education, information, and counselling services, contraceptive-related services, pregnancy-related services, Safe abortion-related services, and HIV testing and treatment services were observed to be considerably low. Participants' gender, marital status, living

arrangement and employment status were found to be significantly associated with the service utilization among PWD. Individual, community, and institutional levels barriers were encountered by individuals with disabilities in accessing and utilizing SRH services, such as lack of disability-friendly infrastructure at health facilities, reluctance to disclose SRH problems to health workers, lack of privacy and confidentiality at health facilities, limited familial support, financial constraints hindering access to SRH services, poor transportation facilities to reaching healthcare facilities, and overall dissatisfaction with the behavior shown by the health service providers. Therefore, there is an urgent need to take prompt action to enhance the accessibility and utilization of SRH services among PWDs. Context-specific community-based interventions to create awareness about SRH among PWD and address the barriers presented within the health system through the establishment of disability-friendly SRH services are crucial to meet the SRH needs and rights of individuals with disabilities in Nepal.

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Authors Contributions Conceived and designed the study: DRSi, SKC, KK. Tool translation to Nepali: DRSi, KK, SKC, SS, DK. Facilitated data collection: KK, SKC, SS, and DK. Data management: DRSi, KK, SKC, DRSu, DK, RKS, SG. Writing an original draft and editing of the manuscript: DRSi, KK, SKC, DRSu, DK, RKS, LKS, JM, SS, SG. Critical revision of the manuscript: DRSi, KK, SKC, DRSu, DK, RKS, JM and LKS. All authors have read and approved the manuscript.

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Data Availability The datasets generated during and/or analysed during the current study are available from the corresponding author on request.

Declarations

Ethics Approval The ethical approval for the study was obtained from the National Ethical Review Board at the Nepal Health Research Council (Regd.no:443/2019). Formal approval was also obtained from the local organisation, which provided the list of people with disabilities in the respective areas and access to the study participants.

Consent to Participate Informed written consent was obtained from all the participants before the interview. They were fully informed about voluntary participation in the study and had the right to withdraw at any stage of the study process before data analysis. They were assured about the confidentiality and privacy of their personal information.

Consent for Publication Not applicable.

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Statement The ethical approval for the study was obtained from the Ethical Review Board at the Nepal Health Research Council (Regd.no:443/2019). Informed written consent was obtained from all the participants before the interview.

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Authors and Affiliations

Devendra Raj Singh[1,2] · Samita K.C[2] · Dev Ram Sunuwar[3] · Sarina Shrestha[2] · Rajeeb Kumar Sah[1] · Sushmita Ghimire[4] · Dan Bahadur Khadka[5] · Lalita Kumari Sah[6] · Jennifer Mathias Shah[7] · Kshitij Karki[2,8]

✉ Devendra Raj Singh
devendraraj.singh@hud.ac.uk

[1] School of Human and Health Sciences, University of Huddersfield, Huddersfield, UK

[2] Department of Public Health, Asian College for Advance Studies, Purbanchal University, Lalitpur, Nepal

[3] School of Public Health, University of Michigan, Ann Arbor, USA

[4] School of Public Health, Patan Academy of Health Sciences (PAHS), Lalitpur, Nepal

[5] Research and Innovation Section, Southeast Asia Development Action Networks (SADAN), Lalitpur, Nepal

[6] School of Nursing and Healthcare Leadership, University of Bradford, Bradford, UK

[7] Griffith University, Brisbane, QLD, Australia

[8] Group for Technical Assistance (GTA), Lalitpur, Nepal