Factors affecting utilization of sexual and reproductive health services among women with disabilities- A mixed-method cross-sectional study from Ilam district, Nepal

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Abstract

Background

Despite Sustainable Development Goals explicit call for ensuring “Universal access to Sexual and Reproductive Health(SRH)”, and specific articles in the United Nations Convention on the Rights of Persons with Disabilities, women with disabilities(WwD) continue to experience barriers to access SRH services in Nepal. This study assessed factors affecting utilization of SRH services among WwD in Ilam district, Nepal.

Methods

A mixed method cross-sectional study of 384 WwD of reproductive age was conducted in Ilam district, Nepal. Face-to-face interviews were conducted using structured questionnaire. Relationships between utilization of SRH services and associated factors were explored using multivariate logistic regression. In-depth interviews of WwD, key informant interviews of health workers and local political leaders, and focus group discussions with Female Community Health Volunteers were used to collect qualitative data and underwent thematic analysis. Data were analyzed using Health Belief Model.

Results

One in five (15%) WwD had ever utilized SRH services. No need of (57%) and unaware of SRH services (24%) were main reasons for not utilizing SRH services. Majority (81%) of them reported that nearest health facility was not disability-friendly (73%) specifically referring to road (48%). A multivariate analysis showed factors positively associated with utilization of SRH services that included being ever-married (AOR = 121.7, 95% CI: 12.206-1214.338), perceived need of SRH services (AOR = 5.5; 95% CI: 1.419–21.357) and perceived susceptibility to SRH related disease/condition (AOR = 6.0; 95% CI:1.978–18.370). Qualitative findings revealed illiteracy, low economic and social class, lack of information, severity of disability, lack of disability friendly environment (no family support, distant health facility, inaccessible-infrastructure, stigmatization, bad behavior and attitude of health care providers), perception that SRH is needed only for married, and negative individual perception towards SRH (no need of SRH services, not susceptible to SRH related disease/condition and SRH disease/condition is not severe) as barriers to utilization of SRH services among WwD.

Conclusions

Utilization of SRH services among WwD was very low in Ilam district, Nepal. Promoting awareness raising program, ensuring disability-friendly environment, and prioritizing SRH services irrespective of marital status could increase SRH service utilization among WwD.

Introduction

According to World Health Organization(WHO), about 15 percent of the world's population lives with some form of disability, of whom two to four percent experience significant difficulties in functioning[1]. The great majority of persons with disabilities are part of the 80 percent of the world's population that lives in developing countries[2]. In Nepal, the prevalence of person with disability is 1.94 percent and almost half of them are women[3].

Sexual and Reproductive Health (SRH) is an essential component of health and a pillar for sustainable development. SRH services are essential for all people including person with disabilities, both married and unmarried. All too often, the SRH of persons with disabilities has been overlooked by disability community as well as those working on SRH. Persons with disabilities have the same needs for SRH services as everyone else. In fact, persons with disabilities may actually have greater needs for SRH education and care than persons without disabilities due to their increased vulnerability to abuse. Persons with disabilities face many barriers to care and information about SRH. Persons with disabilities are assumed not to be sexually active and therefore do not need SRH services. Research shows that persons with disabilities are as sexually active as persons without disabilities. Despite this, too often their sexuality has been ignored and their reproductive rights, denied[4].

Despite Sustainable Development Goals(SDGs) explicitly call for ensuring "universal access to sexual and reproductive health and reproductive rights" and specific articles in the United Nations Convention on the Rights of Persons with Disabilities (CRPD)[5], the SRHR of many women with disabilities continue to be unattainable and little research has examined the specific barriers these women face in developing countries.

There are very few data available on SRH of women with disabilities at national and international levels, as generally data are not disaggregated by gender, age and disability. Though there are many survey and studies on SRH of women in Nepal, majority of them have not disaggregated their data by disability. There is very limited information on utilization of SRH services among women with disabilities in Nepal. A cross-sectional study conducted in six districts that included Kathmandu, Lalitpur, Bhaktapur, Kaski, Parsa and Morang of Nepal showed that 76 percent of young persons with disabilities reported hearing of major components of SRHR such as masturbation, family planning, safe abortion and sexually transmitted infections (STIs). About 22 percent of the young person with disabilities reported difficulty in communicating with the SRH service provider[6].

The utilization of SRH services among women with disabilities and factors associated with its utilization were still less explored issue in Nepal. There was an urgent need to identify these barriers in our local context. Hence, the study was conducted to assess utilization of SRH services among women with disabilities and identify factors that have been barriers to its utilization in Ilam district, Nepal.

Methodology

Ilam is a hilly district situated in province number one of eastern Nepal. The area of the district is 1,703 km^2 and have 290,254 populations. It consists of six rural municipalities and four municipalities. The prevalence of disability is 2.63 percent in Ilam, which is higher than national disability prevalence rate 1.94[3]. Ilam district was selected purposively for the study. The cross-sectional explorative study employed a mixed method to access utilization of SRH services and factors associated with its utilization among women with disabilities.

The study was conducted between September 2018 and February 2020.The sample size estimation for the quantitative study was 384. A complete list of women with disabilities aged 15–49 years residing in Ilam district was prepared with the help of Women Child Officer and further inquiry with Female Community Health Volunteers(FCHVs) and Community Based Rehabilitation (CBR) facilitator for missing girls and women with disabilities. From the sampling framework of 829 women with disabilities aged 15–49 years, 384 samples were selected using systematic random sampling with the sampling interval of two. Only the women aged 15–49 who fell under disability category, i.e. those who responded at least one domain that is coded as “Yes, a lot of difficulty” or “Cannot do it at all” of the Washington Group Short Set questionnaire[7] were included in the study.

A pretested structured questionnaire digitalized in tablets was used and face-to-face interviews were conducted to collect quantitative data. Support from caretaker was sought for those who were unable to respond. A total of 10 enumerators, who have completed Bachelor of Public Health(BPH) were trained on data collection. Data collection was completed over two months starting from 23rd May to 21st July 2019.

In-depth interview of women with disabilities, key informant interviews(KII) of health workers and local political leaders, and focus group discussion(FGDs) with Female Community Health Volunteers(FCHVs) were done as a part of qualitative methods to supplement the findings as well as to explore in detail the underlying elements that might affect the service utilization from both the women with disabilities and the service providers’ perspectives. The interviews were taken by two team each comprising of a female researcher and a female note taker. They have completed BPH, were trained in qualitative study and familiar with local language and cultural context. In-depth interviews of two women with disabilities, KII of health workers (a female Auxiliary Health Worker and a male senior Auxiliary Health Worker), KII of two male local political leaders, and FGDs with FCHVs (11 and 8 in two groups) were conducted. The participants were selected purposively. Nobody refused to participate and there was no drop out. Interview guideline was prepared and followed. FGDs were conducted in separate large hall of health post. In-depth interviews of women with disabilities were conducted in a separate room of their house. KII of health workers were conducted in a separate room of health post where they work. KII of local leaders were conducted at their office in a separate room. Audio recording was done with audio recorder and field notes were taken during the interview/ FGD. It took 30–45 min for FGD and 15–20 min for other interviews. No any repeat interview was carried out. Sampling for qualitative study was stopped once saturation level was met and no additional information were derived from the interviews. Transcripts were returned to participants for comment and/or correction.

Ethical approval was obtained from Nepal Health Research Council[8]. Approval was obtained from concerned authorities (municipalities and rural municipalities of Ilam district) to conduct the research in the district. Information was provided on potential risk, discomfort and benefits to the participants, and confidentiality, the right to refuse or withdraw, and the right to information. Interviewer introduced oneself and briefed about study before starting the interview/FGD. Informed consent was obtained from the respondents (informed and written). For the respondents below 18 years of age, consent from her guardian and accent from the respondents were taken.

For quantitative study, data was analyzed using in Statistical Package for Social Science (SPSS) software[9] version 23 after necessary cleaning of the data. Utilization of SRH was the dependent variable and was defined as the use of any of the following SRH services: maternal and newborn care; contraceptive information and services; prevention and appropriate treatment of infertility; safe abortion and post-abortion care; combatting HIV/AIDS and other sexually transmitted diseases, prevention of gender based violence, care for victims and information, education and counseling on sexual violence, actions to eliminate harmful traditional practices such as female genital mutilation and early and forced marriage; and comprehensive sexuality education and youth-friendly services. Independent variables of the study consisted of sociodemographic, socioeconomic, disability related characteristics, women empowerment, knowledge and attitude on SRH, and access to SRH services. A cross-tabulation using Chi-square test (or Fisher's exact test) was carried out to look for associations between dependent and independent variables. Multivariate analysis was carried out for those variables, which were significant ($p < 0.05$) at the 95% confidence interval(CI) in the bivariate analysis after checking collinearity.

For qualitative study, the data was coded by two female researchers. Data collected from in-depth interview, FGD and KII were underwent thematic analysis manually adapting Health Belief Model[10]. The themes were identified in advance from the model. Feedback from participants on the research findings were sought and incorporated to ensure that the participants' own meanings and perspectives are represented.

Results

The median age of respondent was 35 years. Among 384 respondents, one-third (35%) of them were illiterate. More than half of them were Hindu (56%), never married (64%), belonged to a joint family (59%) and unemployed (59%). The average household size was 5.1. One in five (15%) had ever utilized any SRH services

Age, type of family, family size, marital status, educational status of study population and their caretaker were significantly associated with utilization of SRH services. Women aged 35 and above (OR=3.4, CI: 1.795-6.430), belonged to joint family (OR=2.0, CI:1.100-3.760), have less than five family size (OR=2.3, CI:1.304-4.011), literate (OR=0.0, CI:2.3(1.201-4.612), have literate caretaker (OR=2.9, CI:1.009-8.588) and ever married (OR=174.7, CI:23.818-1281.599) were more likely to utilize SRH services compared to their counter partners.

Table 1 Socio-demographic and socio-economic characteristics of respondents and their association with utilization of SRH services (*n=384)*

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes	No		
	n (%)	n (%)		
Age				
35 and above	45(22.2)	158(77.8)	0.000*	3.4(1.795-6.430)
Below 35	14(7.7)	167(92.3)		Ref
Religion				
Hindu	39(18.3)	174(81.7)	0.076	1.7(0.946-3.027)
Buddhist/Kirat/ Christian	20(11.7)	151 (88.3)		Ref
Ethnicity				
Brahman/Chhetri	24(19.5)	99(80.5)	0.124	1.2(0.885-2.770)
Dalit/Janajati/Madhesi/Thakuri/Dasnami	35(13.4)	226(86.6)		Ref
Type of family				
Joint	43 (18.9)	185(81.1)	0.024*	2.0(1.100-3.760)
Nuclear	16(10.3)	140 (89.7)		Ref
Household size				
Less than 5	33(22.1)	116(77.9)	0.004*	2.3(1.304-4.011)
5 or more	26(11.1)	209(88.9)		Ref
Educational status				
Literate	47(18.8)	203(81.2)	0.013*	2.3(1.201-4.612)
Illiterate	12(9.0)	122(91.0)		Ref
Educational status of caretaker (n=314)				
Literate	34(14.2)	205(85.8)	0.048*#	2.9(1.009-8.588)
Illiterate	4(5.3)	71(94.7)		Ref
Marital Status				
Ever married	58(41.7)	81(58.3)	0.000*#	174.7(23.818-1281.599)
Never married	1(0.4)	244(99.6)		Ref
Occupation				

Employed	35(29.4)	84(70.6)	0.000*	4.2(2.353-7.441)
Unemployed	24(9.1)	241(90.9)		Ref
Wealth quintile				
Lowest	11(14.5)	65(85.5)	0.810	1.1(0.537-2.217)
Other	48(15.6)	260 (84.4)		Ref

[a] As per classification system used by Health Management Information System section of Department of Health Services, Nepal[11]

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant

[#]Fisher's exact test

Ref reference group

The qualitative study shows that all women with disabilities were refrained from SRH services and information.

"There isn't specific but all kind of women with disabilities are been refrained from SRH services and information. They do not have access to these services. (Participant number 3, Local political leader during KII)"

"SRH services are needed for all. I think that those women with mild disability who are able to walk, aged 20-45 years, belong to upper class and caste, educated, and married utilize SRH services more compared to others. (Participant number 1, Woman with disability during in-depth interview)"

Though economic status was not found to be significantly associated with utilization of SRH services, the qualitative finding shows poor economic status as one of the barriers to utilization of SRH services among women with disabilities.

"Woman with disability who belongs to rich family are more educated and aware of SRH services that those who belongs to poor family. Poor economic condition and illiteracy are barriers to utilize SRH services. (Participant number 4, Local political leader during KII)"

Utilization of SRH Services

The utilization of SRH services among women with disabilities was low (15%). Only 12 percent had ever received maternal and newborn care, 11 percent had ever utilized contraceptive information and services, 0.3 percent had ever received prevention and appropriate treatment of infertility services, and 0.5 percent had ever utilized safe abortion and post-abortion care. None of them had ever utilized other SRH services

such as combatting HIV/AIDS and other sexually transmitted diseases; prevention of gender-based violence, care for victims and information, education and counseling on sexual violence; actions to eliminate harmful traditional practices such as female genital mutilation and early and forced marriage; and comprehensive sexuality education and youth friendly services. No need of (57%) followed by unaware of SRH services (24%) were prime reasons for not utilizing SRH services.

Table 2 Utilization of SRH services among women with disabilities (*n=384)*

Variables	Frequency	Percent
Utilization of SRH services		
Yes	59	15.4
No	325	84.6
Utilization of SRH services by component*		
Maternal and newborn care services	45	11.7
Contraceptive information and services	38	9.8
Prevention and appropriate treatment of infertility	1	0.3
Safe abortion and post-abortion care services	2	0.5
Reason for not utilizing the service from nearest health facility (n=325)		
No need		
Facility too far away	186	57.2
Health facility is not disability-friendly	21	6.5
Don't know about the service	27	8.3
Other	78	24.0
	13	3.4

** Multiple responses*

Others: Providers are often unavailable, prefer to receive care at home, no one available to accompany, no quality services, language barrier, scared of side effects, no tradition

Disability and Utilization of SRH Services

Among 384 respondents, about one-third (31%) of them had physical disability and 7 percent had disability related to vision, 16 percent had disability related to hearing, 7 percent had disability related to voice and speech, 12 percent had mental/psychosocial disability, 9 percent had intellectual disability, 0.5

percent had autism and 18 percent had multiple disability. Among 318 disability ID card holders, 14, 40, 25 and 21 percent of them had profound, severe, moderate and mild disability respectively.

Table 3 Disability related characteristics of respondents *(n=384)*

Variables	Frequency	Percent
Types of disability[a]		
Physical disability	119	31.0
Disability related to vision-blindness	7	1.8
Disability related to vision-low vision	11	2.9
Disability related to vision -complete blind	8	2.1
Disability related to hearing -deaf	33	8.6
Disability related to hearing -hard of hearing	29	7.6
Disability related to voice and speech	26	6.8
Mental or psychosocial disability	44	11.5
Intellectual disability	35	9.1
Disability related to Autism	2	0.5
Multiple disability	70	18.2
Severity of disability (n=318)[a]		
Profound	45	14.2
Severe	127	39.9
Moderate	80	25.2
Mild	66	20.8

[a]Based on type and severity of disability defined by Government of Nepal[12]

Both type and severity of disability were significantly associated with utilization of SRH services. Those women having physical disabilities (OR=3.0; CI:1.692-5.254) and mild disability (OR=2.8; CI: 1.500-5.262) were three times more likely to utilize SRH services compared to their counter partners.

Table 4 Disability related characteristics of respondents and their association with utilization of SRH services (*n=384)*

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes n (%)	No n (%)		
Type of disability				
Physical disability	31(26.1)	88(73.9)	0.000*	3.0(1.692-5.254)
Other than physical disability	28(10.6)	237(89.4)		Ref
Severity of disability (n=318)				
Mild	19(28.8)	47(71.2)	0.001*	2.8(1.500-5.262)
Moderate/Severe/Profound	40(2.6)	278(87.4)		Ref

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant.

Ref reference group

The qualitative study also supported the quantitative finding revealing need of assistance and lack of support from family members as barrier to utilization of SRH services

"Those women who have mild physical disability are able to utilize SRH services. But those who have mental disability and severe form of other disability are unable to utilize such services. They need someone to escort but their family members are often busy in household chores and livelihood related activities (Participant number 3, Local political leader during KII)"

Empowerment and Utilization of SRH Services

Among 384 respondents, more than half of them (61%) did not participate at all in three key household decisions (health care, major household purchases and visit to family or relatives). Only half of them (52%) had membership in community group. Less than a quarter (22%) earned cash or in-kind and only 12 percent owned any house or land either alone or jointly with someone else.

More than half of them (63%) were low empowered, a quarter (26%) were moderately empowered and only 11 percent were highly empowered.

Participation in household decision making, membership in community group, earn cash/in-kind and empowerment were significantly associated with utilization of SRH services. Those respondents who participated in household decision were six times more likely to utilize SRH services compared to those who did not participate (OR=6.1; CI: 3.272-11.545). Those respondents having membership in community group were two times more likely to utilize SRH services compared to non-members (OR=2.4; CI: 1.320-

4.224). Moderately or highly empowered women with disabilities were four times more likely to utilize SRH services compared to those who were low empowered (OR=4.5; CI: 2.471-8.101).

Table 5 Empowerment level of respondents and their association with utilization of SRH services (*n=384)*

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes n (%)	No n (%)		
Involvement in household decision making				
Participate in all decisions	44(29.5)	105(70.5)	0.000*	6.1(3.272-11.545)
No participation	15(6.4)	220(93.6)		Ref
Membership in community group Yes				
No	39(21.0)	147(79.0)	0.004*	2.4(1.320-4.224)
	20(10.1)	178(89.9)		Ref
Earn cash or in-kind				
Yes	36(41.9)	50(58.1)	0.000*	8.6(4.707-15.745)
No	23(7.7)	275(92.3)		Ref
Ownership of house/land				
Yes	10(21.7)	36(78.3)	0.205	1.6(0.764-3.515)
No	49(14.5)	289(85.5)		Ref
Women empowerment[a]				
Moderately and highly empowered	40(27.8)	104(72.2)	0.000*	4.5(2.471-8.101)
Low empowered	19(7.9)	221(92.1)		Ref

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant

Ref reference group

[a]Women's empowerment was a composite index of women empowerment comprising involvement in household decision-making, membership in community group, cash earning, ownership of house/land and educational status of women[13]

The qualitative study reveals that women with disabilities are more prone to violence.

“Women with disabilities themselves are not in situation to share their needs or problems. If someone misbehaved, other women could discuss about it openly and say ‘No’. But, in regards to women with disabilities, they are not empowered. They are unable to raise their voice and defend themselves. (Participant number 4, Local political leader during KII)”

The qualitative findings also highlighted the issues of sexual violence and forced control on reproduction among women with disabilities.

“Many women with disabilities are not getting any support from home and they themselves are not aware of SRH. And……(sigh) those women with disabilities, who are bedridden, are prone to sexual violence. There are some instances of rape and forced marriage among women with disabilities in our locality. (Participant number 2, Woman with disability during in-depth interview)”

“We found that some family members are providing Depo-Provera injection to their daughters with disabilities. The family members have to go outside for work. They feel that girls with disabilities are prone to sexual violence in their absence. So, they provide Depo-Provera injection to prevent her from being pregnant. (Participant number 7, FCHV during FGD)”

Media Exposure and Utilization of SRH Services

The media exposure seemed quite low. Among 384 respondents, about one-third of them had never listened to radio/FM or watched TV. The percentage of non-user was even higher for newspaper and internet, which was 68 percent and 66 percent respectively. Those respondents who often listened to radio/FM were two times more likely to utilize SRH services compared to those who never listen to radio/FM (OR=2.3; CI: 1.303-4.088).

Table 6 Media Exposure and their association with utilization of SRH services (n=384)

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes n (%)	No n (%)		
Listen to radio/FM				
Often	37(21.3)	137(78.7)	0.004*	2.3(1.303-4.088)
Never	22(10.5)	188(89.5)		Ref
Watch TV				
Often	32(16.0)	168(84.0)	0.719	1.1(0.635-1.932)
Never	27(14.7)	157(85.3)		Ref
Read newspaper				
Often	8(15.1)	45(84.9)	0.953	1.0(0.435-2.192)
Never	51(15.4)	280(84.6)		Ref
Surf internet to get information on health				
Often	11(23.4)	36(76.6)	0.107	1.8(0.877-3.860)
Never	48(14.2)	289(85.8)		Ref

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant.

Ref reference group

Knowledge and Perception of Women with Disabilities and Utilization of SRH Services

Majority (72%) of respondents had heard about SRH. Radio/FM (40%) followed by teacher (37%) were found to be the main source of SRH related information. The overall knowledge on SRH was found to be poor. More than two-third of them i.e. 69 percent had very poor knowledge and 18 percent of them had poor knowledge on SRH.

Among 384 respondents, only half (50%) of the respondents, perceived the need for SRH services. Only one-third (35%) of them perceived themselves as susceptible for SRH related disease/condition and 8% of them perceived SRH related diseases/condition as very severe. Only 30% of them reported benefit of utilization of SRH services. Only 14 percent reported themselves as competent/very competent for behavior change related to utilization of SRH services.

Table 7 Knowledge of respondents on SRH *(n=384)*

Variables	Frequency	Percent
Heard about SRH		
Yes	109	28.4
No	275	71.6
Source of SRH related information (n=109)*		
Friend	24	22.0
Family Member	20	18.3
Health worker	26	23.9
Female Community Health Volunteer (FCHV)	26	23.9
Teacher	40	36.7
Mother's/Women's group	6	5.5
Training	7	6.4
Radio, FM	44	40.4
TV	23	21.1
Internet	8	7.3
Newspaper	11	10.1
Poster, Pamphlet	2	1.8
Study books	4	3.7
Knowledge on SRH[a]		
Good	4	1.0
Satisfactory	45	11.7
Poor	68	17.7
Very poor	267	69.5
Have comprehensive knowledge about HIV[b]		
Yes	2	0.5
No	382	99.5

Note:

[a] *Knowledge of SRH was a composite measure adapted from Measure Evaluation for Sexual and Reproductive Health Knowledge* [14]

[b] *Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV*[15]

Knowledge on SRH, perceived need, susceptibility, severity and self-efficacy were found to be significantly associated with utilization of SRH services. Women with disabilities having knowledge on SRH were four times more likely to utilize SRH services (OR=4.3; CI: 2.428-7.692) compared to those who have very poor knowledge. Those respondents who perceived need of SRH services, perceived oneself susceptibility to SRH related disease/condition and perceive that SRH related disease/ condition is severe were ten (OR=9.9; CI: 4.382-22.550), seven (OR=7.5; CI: 4.001-14.220) and four (OR=3.9; CI: 1.928-7.974) timely likely to utilize SRH services respectively compared to those who did not perceive.

Table 8 Knowledge and perception of respondents on SRH and their association with utilization of SRH services (*n=384)*

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes	No		
	n (%)	n (%)		
Knowledge on SRH				
Other	35(29.9)	82(70.1)	0.000*	4.3(2.428-7.692)
Very poor	24(9.0)	243(91.0)		Ref
Perceived need of SRH services				
Yes	52(27.2)	139(72.8)	0.000*	9.9(4.382-22.550)
No	7(3.6)	186(96.4)		Ref
Perceived susceptibility to SRH related disease/condition				
Yes	44(32.6)	91(67.4)	0.000*	7.5(4.001-14.220)
No	15(6.0)	234(94.0)		Ref
Perceived severity to SRH related disease/condition				
Very severe	5(36.6)	26(63.4)	0.000*	3.9(1.928-7.974)
Other	44(12.8)	299(87.2)		Ref
Perceived benefit of utilization of SRH services				
Yes	24(20.9)	91(79.1)	0.052	1.8(0.994-3.128)
No	35(13.0)	234(87.0)		Ref
Self-efficacy				
Competent/very competent	23(41.1)	33(58.9)	0.000*	5.7(2.996-10.668)
Other	36(11.0)	292(89.0)		Ref

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant.

Ref reference group

Access to and Utilization of SRH services

Majority (73%) of respondents reported that the nearest health facility was not disability friendly specially referring to road (48%).

Table 9 Disability-friendly related characteristics of health facility *(n=384)*

Variables	Frequency	Percent
Nearest health facility is disability-friendly		
Yes	103	26.8
No	281	73.2
Reason behind not disability-friendly health facility (n=281)*		
Road to reach health facility is not disability friendly		
No ramp in health facility	262	48.5
The room inside health facility is not disability friendly	156	28.9
Bad behavior of health workers	98	18.1
Discrimination	5	0.9
No disability friendly IEC/BCC materials	1	0.2
Long distance	15	2.8
	3	0.6

**Multiple responses*

Less of half (47%) of them could access SRH services in less than 30 minutes. The average time taken to visit nearest health facility for SRH services was 45 minutes. The average time distance between home and nearest health facility with SRH services was 9 km. Accessibility of health facility was not significantly associated with utilization of SRH services among WwD.

Table 10: Accessibility of health facility and their association with utilization of SRH services (*n=384)*

Characteristics	Utilization of SRH services		p-value	Crude OR (95%CI)
	Yes	No		
	n (%)	n (%)		
Time taken to reach the nearest health facility				
> 30 mins	32(18.0)	147(82.0)	0.204	1.4(0.822-2.504)
≤30 mins	27(13.2)	178(86.8)		Ref
Distance between home and the nearest health facility				
>1 km	20(14.9)	114(85.1)	0.861	0.9(0.529-1.704)
≤1 km	39(15.6)	211(84.4)		Ref
Enrolment to health insurance				
Yes	13(17.1)	63(82.9)	0.639	1.2(0.599-2.307)
No	46(14.9)	262(85.1)		Ref
Nearest health facility is disability friendly				
Yes	17(16.5)	86(83.5)	0.708	1.1(0.608-2.081)
No	42(14.9)	239(85.1)		Ref

Crude odds ratio is the odds ratio which identifies the association between variables with the use of SRH services. The variable for which p value is less than 0.05(*) is considered significant.

Ref reference group

However, qualitative study shows that remoteness and lack of disability friendly health facility are barrier to utilization of SRH services.

"Persons with severe and profound disabilities are deprived from utilizing SRH services in remote areas as health facilities are not accessible for them and the health providers are unable to reach their home. (Participant number 3, Local political leader during KII)"

Factors Independently Associated with Utilization of SRH Services

Fifteen characteristics which exhibited significant association with utilization of SRH services at 95 percent CI in bivariate analysis were further subjected to multivariate analysis. There was no problem of collinearity among independent variables as the highest Variance Inflation Factor was 2.009.

Marital status, perceived need of SRH services and perceived susceptibility to SRH related disease/condition were found to be significantly associated with utilization of SRH services. Those

women with disabilities who were ever married are 122 times more likely to utilize SRH services compared to those who were never married (AOR=121.7, CI: 12.206-1214.338). Those women with disabilities who perceived need of SRH services were five times more likely to utilize SRH services compared to those who did not perceive need of SRH services (AOR=5.5; CI: 1.419-21.357). Those women with disabilities who perceived themselves susceptible for SRH related disease/ condition were six times more likely to utilize SRH services compared to those did not perceive themselves as susceptible (AOR=6.0, CI:1.978-18.370).

Table 11: Factors independently associated with utilization of SRH services *(n=384)*

Characteristics	Crude		Adjusted	
	p-value	OR (95%CI)	p-value	OR (95%CI)
Age				
35 and above	0.000*	3.4(1.795-6.430)	0.879	0.9(0.224-3.594)
Below 35		Ref		Ref
Type of family				
Joint	0.024*	2.0(1.100-3.760)	0.821	0.847(0.201-3.574)
Nuclear		Ref		Ref
Educational status of caretaker (n=314)				
Literate	0.048*#	2.9(1.009-8.588)	0.468	1.7(0.400-7.359)
Illiterate		Ref		Ref
Marital Status				
Ever married	0.000*#	174.7(23.818-1281.599)	0.000*	121.7(12.206-1214.338)
Never married		Ref		Ref
Household size				
Less than five	0.004*	2.3(1.304-4.011)	0.459	1.7(0.434-6.352)
Five or more		Ref		Ref
Occupation				
Employed	0.000*	4.2(2.353-7.441)	0.130	2.5(0.762-8.236)
Unemployed		Ref		Ref
Type of disability				
Physical disability	0.000*	3.0(1.692-5.254)	0.818	0.9(0.232-3.169)
Other than physical		Ref		Ref
Severity of disability (n=318)				
Mild	0.001*	2.8(1.500-5.262)	0.722	1.3(0.318-5.223)
Moderate/Severe/Prof.		Ref		Ref
Women empowerment				
Moderate and high	0.000*	4.5(2.471-8.101)	0.968	1.0(0.259-3.659)
Low empowered		Ref		Ref

Listen to radio/FM				
Often	0.004*	2.3(1.303-4.088)	0.738	1.2(0.351-4.389)
Never		Ref		Ref
Knowledge on SRH				
Other	0.000*	4.3(2.428-7.692)	0.936	0.9(0.254-3.528)
Very Poor		Ref		Ref
Perceived need of SRH services				
Yes	0.000*	9.9(4.382-22.550)	0.014*	5.5(1.419-21.357)
No		Ref		Ref
Perceived susceptibility to SRH related disease/condition				
Yes	0.000*	7.5(4.001-14.220)	0.002*	6.0(1.978-18.370)
No		Ref		Ref
Perceived severity to SRH related disease/condition				
Very severe	0.000*	3.9(1.928-7.974)	0.251	2.6(0.504-13.760)
Not very severe		Ref		Ref
Self-efficacy				
Competent/very comp.	0.000*	5.7(2.996-10.668)	0.891	1.1(0.255-4.813)
Other		Ref		Ref

Adjusted odds ratio is the odds ratio which identifies the association between variables with the use of SRH services taking all variables in account.

The variable for which p value is less than 0.05(*) is considered significant

#Fisher's exact test

Ref reference group

Barriers to utilization of SRH services among women with disabilities adapted from health belief model

Health Belief Model is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services[10]. As Health Belief Model is most widely used theories in health behavior research, it was adopted to present the findings from qualitative data of the study.

There are various factors responsible for the final outcome (here, utilization of SRH services). The first factor is individual perception, which is related to perceived susceptibility and perceived severity. Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The combination of perceived severity and perceived susceptibility is referred to as perceived threat[10].The study shows that those women with disabilities who did not perceive oneself susceptible to SRH related disease/condition and did not consider SRH related disease/condition as serious were less likely to utilize SRH services. Lower perceived threat led to a lower utilization of SRH services.

The modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers[10]. Perceived severity and perceived susceptibility to SRH related disease/condition depended on knowledge on SRH. The study shows that those women with disabilities who were illiterate, belonged to low socioeconomic status and low social class, lack information from FCHVs and lack sharing among neighbor/friends were less likely to utilize SRH services.

A cue, or trigger, is necessary for prompting engagement in health-promoting behaviors[10]. The study shows that less media exposure (radio/FM, TV, internet other social media) limited engagement in health-related behaviors and resulted low utilization of SRH services among women with disabilities.

The contributing factors for utilization of SRH services are perceived benefits whereas the hindering factors for utilization of SRH services are perceived barriers. Likelihood of action is the results of perceived benefits minus perceived barriers[10]. The study shows that those women with disabilities, who perceived benefits of utilization of SRH services, were more likely to utilize the services. The perceived barriers for utilization of SRH services among women with disabilities were lack of empowerment, severity of disability, type of disability (intellectual disability), lack of disability-friendly environment (lack of family support, distant health facility, lack of accessible infrastructure including road and health facility, stigmatization, bad behavior and attitude of health care providers), and perception that SRH is needed only for married person. The utilization of SRH services by women with disabilities also depended on how the person overcome the barrier considering the benefits.

Discussion

Our finding provides good evidence that utilization of SRH services among women with disabilities is very low in Ilam district, Nepal. Among 384 women with disabilities of reproductive age, only 15 percent of them had ever utilized SRH services. The finding is similar with finding from Cameroon[16], which shows that only 20 percent of women with disabilities had ever used SRH services.

The study shows that educational status of women with disabilities (OR = 2.3, CI:1.201–4.612) and her caretaker (OR = 2.944, CI:1.009–8.588) were positively associated with utilization of SRH services. Education and health awareness programs were influencing factors while lack of family support and stigmatization were barriers to utilization of SRH services. The finding is similar with study on Cameroon, which showed that higher education level is positively association with HIV testing (OR = 2.41, CI: 0.35–

16.70)[16]. Another study conducted in three countries (Uganda, Zambia and Ghana) also showed that lack of family support and stigma related to HIV and disability hinders utilization of SRH services[17].

The study shows positive relationship between empowerment and utilization of SRH services. Employed (OR = 4.184; CI:2.353–7.441) and empowered (OR = 4.5, CI:2.471–8.101) women with disabilities were more likely to utilize SRH services. However the cross-sectional study from Cameroon[16] did not show any association between life time work participation and utilization of SRH services by persons with disabilities(p = 0.3).

The study shows that women having physical disabilities (OR = 2.982; CI:.692-5.254) and mild disability (OR = 2.810; CI: 1.500-5.262) were more likely to utilize SRH services than their counter partner. The qualitative finding also shows that those women having intellectual disabilities or severe disability needed someone to escort them to health facilities, which is not possible as family members themselves were busy in household chores and livelihood related activities. The finding is similar with the study conducted on three countries (Uganda, Zambia and Ghana), which also highlighted that people with disabilities often need to travel with an assistant to help them maneuver around obstacles they encounter on the way. This brought additional complications due to the difficulty of finding someone prepared to give up their time and be publicly seen[17].

The study shows that women with disabilities having knowledge on SRH (OR = 4.322; CI: 2.428–7.692) were more likely to utilize SRH services. Illiteracy, lack of information and lack of awareness were reported as barriers to utilization of SRH services. The finding is similar with qualitative study from Uganda[18] and literature review conducted in developing countries[19], where lack of information was identified as one of the key barriers to access SRH services by people with disabilities.

The qualitative finding shows that lack of disability-friendly environment (inaccessible infrastructure, distant health facilities, lack of information, stigmatization and staff attitude) as barriers to utilization of SRH services. The findings are similar with findings from qualitative study from Uganda[18] where negative attitudes of service providers, distant health facilities and unfriendly physical structures were identified as barrier for accessing SRH services by persons with disabilities. Besides them, long queues at health facilities and high costs of services involved were also identified as barrier to access SHR services. However, this study does not support the findings.

Studies from Uganda[18] and India[20] showed that people perceived persons with disabilities as asexual, which was identified as one of the barriers to access SRH services. This study contrasts with the findings. In this study, local leaders, health worker, female community health volunteers and women with disabilities themselves perceived that many women with disabilities might be sexually active and need SRH services. However, almost half (48%) of the respondent reported no need of SRH services.

The findings of the study is also similar with literature review of barriers to healthcare services for people with disabilities in developing countries[19], where inaccessible facilities, limited mobility, stigmatization and staff attitude were identified as barriers pertaining to the individual seeking healthcare services by

people with disability. Besides them, other barriers such as additional costs of healthcare and communication barrier were also identified. However, this study does not support the findings.

This study highlighted the importance of individual perception for utilization of SRH services among women with disabilities. Individual perception such as perceived need of SRH services (AOR = 5.505; CI: 1.419–21.357) and perceived susceptibility to SRH related disease/ condition (AOR = 6.028, CI: 1.978–18.370) were found to be positively associated with utilization of SRH services among women with disabilities.

Though SRH services should be provided irrespective of one's marital status, the study shows that those ever-married women with disabilities were more likely to utilize SRH services compared to their counter partner (AOR = 121.7, CI: 12.206-1214.338). The qualitative finding also shows that people hesitated to talk about SRH services to unmarried women with disabilities.

Conclusion

The utilization of SRH services among women with disabilities was very low in Ilam district, Nepal. SRH services were mostly utilized by those women with disabilities who were ever-married, perceived need of SRH services and perceived oneself susceptibility to SRH related disease/condition. Furthermore, illiteracy, low economic and social class, lack of information, severity of disability and lack of disability friendly environment (no family support, distant health facility, inaccessible-infrastructure, stigmatization, bad behavior and attitude of health care providers) were barriers to utilization of SRH services among WwD. Promoting awareness raising program, ensuring disability-friendly environment, and prioritizing SRH services irrespective of marital status could increase the SRH service utilization among WwD.

Limitations Of The Study

The study is conducted in one of the hilly district of Province number one of Nepal, it will not represent the entire national scenario. Furthermore, it is cross-sectional study by design causality analysis cannot be done.

Abbreviations

AOR	Adjusted Odds Ratio
BCC	Behavior Change Communication
BPH	Bachelor of Public Health
CBR	Community Based Rehabilitation
CDPS	Central Department of Population Studies
CI	Confidence Interval
CRPD	Convention on the Rights of Persons with Disabilities
FCHVs	Female Community Health Volunteers
FGD	Focus Group Discussion
FP	Family Planning
GBV	Gender Based Violence
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
KII	Key Informant Interview
NDHS	Nepal Demographic and Health Survey
OR	Odds Ratio
SD	Standard Deviation
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Science
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health Rights
STIs	Sexually Transmitted Infections
UN	United Nations
WHO	World Health Organization

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from Nepal Health Research Council. Approval was obtained from the Ilam District Health Office to conduct research in the district. Information was provided on potential risk, discomfort and benefits to participants, and confidentiality, the right to refuse or withdraw, and right to

information. Informed consent was obtained from the respondents (informed and written). For the respondents below 16 years of age, accent from participants and parental consent was taken.

Consent for publication

All seven authors consent to publish the manuscript.

Availability of data and materials

The datasets analyzed during the current study are available from the corresponding author on reasonable request

Competing interests

The authors declare that they have no any financial or non-financial competing interests.

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None

Authors' contributions

RS designed the study, reviewed the literature, collected data, interpreted the findings, and prepared the manuscript. YBG, RSP, RCP and SN contributed to the study design, data analysis, interpretation, and writing of the manuscript. SD provided technical support for data collection. RKT supported for data collection and analysis. All authors read and approved the final manuscript.

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References

1. Chan DM, Zoellick MRB. World report on disability. Switzerland; 2011. https://www.who.int/disabilities/world_report/2011/accessible_en.pdf. Accessed 21 Jan 2019.
2. UNDP. Disability inclusive development. 2019. https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-development/peace/governance/disability-inclusive-development.html. Accessed 17 Jan 2019.
3. Central Bureau of Statistics. National population and housing census 2011. National Report. Kathmandu, Nepal: Government of Nepal; 2011. https://unstats.un.org/unsd/demographic-

social/census/documents/Nepal/Nepal-Census-2011-Vol1.pdf. Accessed 20 Apr 2019.

4. WHO. Promoting sexual and reproductive health for persons with disabilities. 2009. https://www.unfpa.org/sites/default/files/pub-pdf/srh_for_disabilities.pdf. Accessed 24 Apr 2019.
5. United Nations. Convention on the rights of persons with disabilities and optional protocol. 2006. http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf. Accessed 20 Apr 2019.
6. Gaihre R, Sapkota S, Rajbhandary R, Lohani S. Sexual and reproductive health among young persons' with disability in six districts of Nepal. 2015. https://docplayer.net/126014287-Sexual-and-reproductive-health-among-young-persons-with-disability-in-six-districts-of-nepal.html. Accessed 20 Jan 2019.
7. The Washington Group. Overview of implementation protocols for testing the Washington group short set of questions on disability. 2006. https://www.cdc.gov/nchs/data/washington_group/meeting6/main_implementation_protocol.pdf. Accessed 19 Jun 2019.
8. Nepal Health Research Council. http://nhrc.gov.np/. Accessed 19 Oct 2018.
9. SPSS Software | IBM. https://www.ibm.com/analytics/spss-statistics-software. Accessed 19 Apr 2018.
10. Rosenstock IM. Historical Origins of the Health Belief Model. Health Educ Monogr. 1974;2:328–35.
11. Ministry of Health and Population. Revised HMIS indicators. Kathmandu, Nepal: Government of Nepal; 2013.
12. Nepal Law Commission. Nepal disability rights act 2017. Kathmandu, Nepal: Government of Nepal; 2017. http://www.lawcommission.gov.np/en/wp-content/uploads/2019/07/The-Act-Relating-to-Rights-of-Persons-with-Disabilities-2074-2017.pdf. Accessed 21 Apr 2019.
13. Tuladhar S, Khanal KR, K.C. L, Ghimire PK, Onta K. Women's empowerment and spousal violence in relation to health outcomes in Nepal: Further analysis of the 2011 Nepal Demographic and Health Survey. Calverton, Maryland, USA: Nepal Ministry of Health and Population, New ERA, and ICF International; 2013. https://dhsprogram.com/pubs/pdf/FA77/FA77.pdf. Accessed 22 Jun 2019.
14. University of North Carolina at Chapel Hill. Sexual and reproductive health knowledge-MEASURE evaluation. 2019. https://www.measureevaluation.org/prh/rh_indicators/womens-health/arh/sexual-rh-srh-knowledge. Accessed 25 Aug 2019.
15. Ministry of Health, Nepal, New ERA, ICF. Nepal demographic and health survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal; 2017. https://www.dhsprogram.com/pubs/pdf/fr336/fr336.pdf.
16. DeBeaudrap P, Moute C, Pasquier E, Mac-Seing M, Mukangwije PU, Beninguisse G. Disability and access to sexual and reproductive health services in Cameroon: A mediation analysis of the role of socioeconomic factors. Int J Environ Res Public Health. 2019;16. doi:10.3390/ijerph16030417.
17. Tun W, Oka J, Schenk K, Esantsi S, Mutale F, Kusi Kyeremaa R, et al. Limited accessibility to HIV services for persons with disabilities living with HIV in Ghana, Uganda and Zambia. J Int AIDS Soc. 2016;19 Suppl 4. doi:10.7448/IAS.19.5.20829.

18. Ahumuza SE, Matovu JK, Ddamulira JB, Muhanguzi FK. Challenges in accessing sexual and reproductive health services by people with physical disabilities in Kampala, Uganda. Reprod Health. 2014;11. doi:10.1186/1742-4755-11-59.
19. Baart J, Taaka F. Barriers to healthcare services for people with disabilities in developing countries: A literature review. Disabil CBR Incl Dev. 2017;28:26–40.
20. Dean L, Tolhurst R, Khanna R, Jehan K. 'You're disabled, why did you have sex in the first place?' An intersectional analysis of experiences of disabled women with regard to their sexual and reproductive health and rights in Gujarat State, India. Glob Health Action. 2017;10:1290316.
21. Kasiulevičius V, Šapoka V, Filipavičiūtė R. Sample size calculation in epidemiological studies. Gerontologija. 2006;7(4):225-31.

Additional: Sample Size Calculation

For quantitative study, the sample size[21] was calculated using the formula

$$n=Z^2 *p(1-p)/e^2$$

where,

n is the sample size

Z^2 is the abscissa of the normal curve that cuts off an area at the tails (1 – equals the desired confidence level, e.g.,95 percent)

e is the desired level of precision (5%)

p is the estimated proportion of an attribute that is present in the population

Since the prevalence of utilization of SRH services by girls and women with disabilities was not available, the value of p was supposed to be 0.5.

Therefore,

$n= (1.96)^2 *\{0.5*0.5/ (0.05)^2\}$

or, n=384.16

The sample size was 384.

For qualitative study, sample size was determined based on saturation level.

Figures

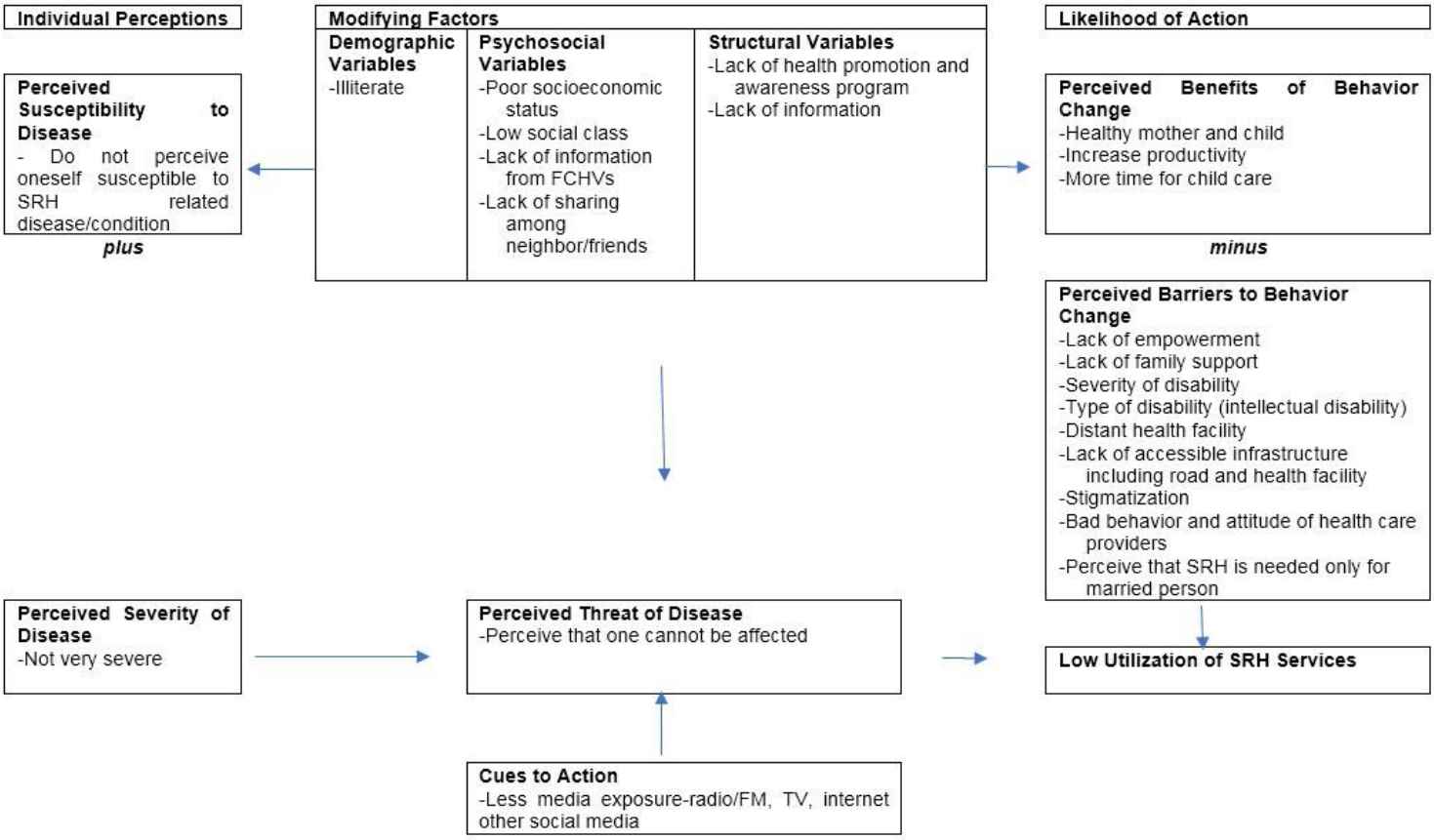

Figure 1

Barriers to utilization of sexual and reproductive health services among women with disabilities adapted from Health Belief Model

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- COREQ32itemchecklist.xlsx
- SRHQuestionnaireEnglish.pdf