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RESEARCH ARTICLE

Issues Related to Men Participation Towards Incidence of Sexually Transmitted Infections (STIs) After The Merapi Eruption 2010 in Indonesia

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Abstract:

Background:

Sexual and Reproductive Health (SRH) issues often get less priority than other aspects of humanitarian health response in emergencies and disasters. We aimed to explore the men's perceptions of Sexually Transmitted Infections (STIs), men's involvement, and barriers to STIs prevention among men in the affected area by Merapi eruption 2010.

Methods:

The study used qualitative content analysis. Data were collected through face-to-face in-depth interviews with 2 participants living with STIs and focus on group discussions with 22 participants who witnessed Merapi eruption 2010 from December 2016 to March 2017 in Sleman District, the Special Region of Yogyakarta Province, Indonesia, including academicians, community leaders and community health workers.

Results:

Participants from the disaster site were mostly senior high school graduates aged between 33 and 46 years. Four themes developed from fourteen categories that represented the men's perceptions of STIs, men's involvement, and barriers to the STIs prevention among men in the affected area by Merapi eruption 2010, were revealed from the investigation.

Conclusion:

Low participation of men in STIs prevention has led to poor SRH outcomes among women. Nurses have a main role in Disaster Risk Reduction (DRR) to enhance the awareness and understanding of people in preparedness for future disasters. Thus, it is necessary for nurses and other health professionals involved in DRR to optimize coordination with community leaders, community health volunteers (health cadres), and other stakeholders to prevent the transmission of communicable diseases in the community.

Keywords: Men participation, Merapi eruption 2010, Reproductive health, Sexually Transmitted Infections (STIs), Disaster Risk Reduction, Communicable diseases.

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1. INTRODUCTION

Indonesia has 129 active volcanoes (approximately 20% of the world total) and pyroclastic flows (primary disaster) and lahars (secondary disasters) caused by the activity of these volcanoes have often led to severe damage in surrounding areas [1, 2]. Merapi volcano is a frequently active basalt to basaltic-andesite stratovolcano in Central Java Province, Indonesia [3]. The latest eruption of Merapi Volcano in 2010 was the most devastating eruption that destroyed more than 300 villages in three districts in Central Java Province and one district in the Special Region of Yogyakarta Province. The South-East Asia Regional Health Emergency Fund (SEARHEF) reported that the disaster had caused 379 deaths and the admission of 2,760 patients; 61,284 were treated at the outpatient units and almost 280,000 were internally displaced; one hospital and 291 buildings were damaged [4]. Moreover, the main health problems were burns and acute respiratory tract infections; the influx of patients was beyond the capacity of the hospitals and the medical supplies necessary to manage such cases were exhausted. The Merapi eruption 2010 has led to loss of life,

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injury, disease outbreaks, disruption of social services, economic and environmental losses.

Gender issues in disaster management need to be learned because it could contribute to the optimum health condition of disaster survivors [5, 6]. During a humanitarian response, traditional priorities tend to focus on the provision of food, water, sanitation, shelter and basic health needs. In the case, women are likely to be in a vulnerable position, even after the Merapi eruption 2010 that often encounters problems such as lack of women's decision-making [7], plan on their pregnancies [8] and existing misconceptions on HIV/AIDS [9] in the disaster-affected areas. However, there has been little attention paid to the role of STIs care in this context. STIs such as gonorrhea, chlamydia, trichomonas and syphilis are given less priority than HIV/AIDS; it is not viewed as a matter of urgency or emergency [10]. According to data provided by the public health center in Sleman District from March 2009 to December 2016, it was reported that the STIs incidence rates had increased significantly associated with sand mining activities after the Merapi eruption 2010. Since the Merapi eruption 2010, there were 581 new cases of STIs and of them, 225 pregnant women were positive STIs [11]. They had suffered STIs with non-specific genital infections (29.5%), bacterial vaginosis (10.2%), vaginal candidiasis (9.1%), gonorrhea (3.4%), and trichomoniasis (1.1%) [11]. Consequently, women are more predisposed to communicable diseases and are more exposed to STIs.

Addressing the SRH needs and rights of affected women and men is crucial to ensuring their well-being in highly disaster-prone countries, and to achieving the Sustainable Development Goals (SDGs) [12, 13]. Nurses have a main role in DRR to enhance the awareness and understanding risk of local people in facing future disasters. Therefore, it is essential to have men's awareness and participation to address the SRH issue, in particular, STIs, after the Merapi eruption 2010 in Indonesia. However, men's participation in STIs after the Merapi eruption 2010 has become challenging in Indonesia where there are socially and culturally defined gender roles. In addition, mortality and morbidity due to these infections in a humanitarian setting are not identified. Data on attitudes, perceptions, and roles of men in the STIs prevention in emergencies and disasters are limited in Indonesia. Sleman District in the Special Region of Yogyakarta Province, Indonesia was the region with the highest STIs incidence rates after the Merapi eruption 2010 [11], thus, it is necessary to conduct research in Sleman District to find effective strategies that do not only consider male partners as mere supporters of women in SRH services but rather as active participants. We aimed to explore the men's perceptions of STIs, men's involvement, and barriers to STIs prevention among men in the affected area by the Merapi eruption 2010.

2. MATERIALS AND METHODS

2.1. Study Design, Participants, and Sampling Techniques

A descriptive qualitative study with content analysis [14] was conducted to explore the men's perceptions of STIs, men's involvement, and barriers to the STIs prevention among men in the affected area by Merapi eruption 2010. A total of 22 participants for focus groups and 2 participants for face-to-face in-depth interviews were included in this study (Table **2**). Purposive sampling was used to recruit participants who met the following criteria: 1) Was a married male, 2) Had witnessed the Merapi eruption 2010 in Sleman District, the Special Region of Yogyakarta Province, Indonesia, 3) Were able to speak the Indonesian national language and/or Javanese language, and 4) Were capable of recalling various events during and after the Merapi eruption 2010. The inclusion criteria also applied to individuals who were considered to be members of vulnerable groups, such as elderly, disabled persons, and persons living with STIs. Those who were unmarried at the onset of the Merapi eruption 2010 were excluded. Each group or interview session variably lasted from 60 to 120 minutes.

2.2. Data Collection and Analysis

Data were collected through face-to-face in-depth interviews and focus group interviews from December 2016 to March 2017 in Sleman District, the Special Region of Yogyakarta Province, Indonesia. Sleman District was one of the severely affected areas by the Merapi eruption 2010. The gatekeeper from the disaster site helped to identify potential participants based on inclusion criteria. The first author then contacted potential participants to explain the study. Participants were given a minimum of 24 hours to decide whether to join this study or to decline. The first author further contacted those who agreed to participate to make prior arrangements for focus groups and face-to-face in-depth interviews. This study used focus groups as the main data collection strategy. However, the study also employed face-to-face in-depth interviews to allow participants who wished to be included in this study but were unable to attend the focus groups because of conflicting schedules and to assure their confidentiality and comfort while no one was present. Informed consent was obtained before conducting either a focus group or face-to-face in-depth interview. It included the name, telephone number and work address of the first author, and availability of professional help if the participants were suffering from negative feelings. Two interviewed participants were persons living with STIs who provided meaningful information related to the research question.

The focus groups and face-to-face in-depth interviews were conducted by the first author in the Indonesian national language and/or Javanese language, and organized in the comfortable and private place for participants, such as the meeting space in the public health center or home to assure their confidentiality and comfort while no one was present. A guideline for the focus group and face-to-face in-depth interview (Table **1**) was employed. The guideline was developed from the literature review and expert consultation.

Data analysis and data collection were conducted continuously and simultaneously. All recorded data and detailed notes were transcribed and analyzed *via* content analysis. The first author used memo writing and field notes for recording the insights to facilitate data analysis. The focus group and interview were recorded by a digital voice recorder and typed in the *NVivo 10* software. Focus group and face-to-face in-depth interview texts were read multiple times. Units of analysis were extracted from the whole focus group and face-to-face in-depth interview texts and then condensed into one text. Important sentences, keywords, or phrases that characterized the perception of men towards STIs, men's

involvement and barriers to STIs prevention among men in the affected area by the Merapi eruption 2010 were identified and highlighted. Common ideas in the text were sorted and coded based on their differences and similarities to create categories and sub-categories. The words and phrases within the categories were reduced by crossing out repetitions or similar words or phrases in order to reduce redundancies. After several modifications, the themes finally emerged. All authors participated in this process and discussed the development of the themes, categories, and sub-categories. The sampling continued until data saturation was accomplished or until no new analytical information was derived in the 24 participants (both focus groups and face-to-face in-depth interviews) by using an individual response approach for generating themes and categories [12].

Table 1. Guideline for focus group and face-to-face in-depth interview.

Participants	Questions
Academician, Community Leaders, and Persons Living with STIs	"What do you think about STIs?"; "How would men in this community react to the STIs?"; "Where/from whom do you obtain information about STIs?"; "Do you feel that the information you have received has been adequate?"; "What kind of information would you like to know?"; "How well do health workers respond to your health needs?"; "Are your health needs prioritized or disregarded?"; "Are you treated equally with regards to confidentiality of health information?"; "Did you have access to SRH services and information, such as about contraceptives, STIs and HIV in the disaster event?" ; "What activities had you engaged in with your partner about SRH matter?"; "What are the obstacles faced to involve men in the STIs prevention?"; "What kinds of financial and social barriers impede your access?"
Community Health Workers	"How well do you respond to men's health needs?"; "Are men's health needs to be prioritized or disregarded?"; "Do men have access to health education and at times you are available?"; "What amount of time do you spend with women and men for the same or comparable conditions?"; "Are there beliefs that would discourage men from getting seeking services for an STI, agreeing to use condoms?"; "What activities had men engaged in with their partner about SRH matter?"; "What are the obstacles faced to involve men in the STIs prevention?"

2.3. Trustworthiness

This study followed the four criteria proposed by Graneheim and Lundman to ensure the trustworthiness of qualitative content analysis research [13]. Data triangulation was sought by reviewing the nursing documentation on the patient's records in the public health center. The selected public health center in the study area is a referral STIs clinic with patients from all around the subdistrict and other subdistricts in Sleman District. Triangulation strategies, such as research field triangulation and member checking were applied for achieving *credibility* and *dependency* criteria. *Credibility* was ensured through peer debriefing, including discussion and sharing the data with co-researchers. Dependency was maintained through documentation of the analytical processes of the study to allow auditability. Furthermore, c*onfirmability* and *transferability* of data were provided by a detailed description of the process of the study. *Confirmability* was gained by presenting the participants' quotations. The coding process, labeling and interpretations were confirmed by each participant and three qualitative research experts. Moreover, three senior disaster researchers from Japan reviewed and agreed with the analysis process and results. Lastly, *transferability* was ensured by presenting the description of the participants in this study.

3. RESULTS

In this study, participants from the disaster site were mostly senior high school graduates aged between 33 and 46 years (Table **2**). Four themes developed from fourteen categories that represented the men's perceptions of STIs, men's involvement, and barriers to the STIs prevention among men in the affected area by the Merapi eruption 2010, were revealed from the investigation (Table **3**).

3.1. Socio-cultural and Environmental Factors

3.1.1. Misconceptions

Some of the participants mentioned that there was a general feeling that STIs were not considered as serious infections:

"I wasn't concerned if I had an STI. I didn't think it would have been a bad one because it wasn't HIV/AIDS." (RP-23, Face-to-face in-depth interview).

Similarly, the lack of concern about contracting gonorrhoea was reported by participants because it is treatable infections:

"I don't concern much about gonorrhoea and stuff like that because it's not so something serious and could be treated by some medicines." (RP-13, Focus group interview).

Most of the participants told that men often assume that SRH issues in public health center are only for women:

"We don't think sexual and reproductive health for men. Is this for men too? It's the women's issue. Sexual and reproductive health is usually provided for women." (RP-15, Focus group interview).

3.1.2. Stigmatization

Participants mentioned that STIs are still highly stigmatized and labeled in Sleman District. Persons living with STIs were viewed as a gauge of immorality:

"If people here know someone has STIs, then such a person loses his/her status of standing in society soon. People would point fingers on him/her." (RP-24, Face-to-face in-depth interview).

In the focus group, the participants spoke that they were aware of the stigma related to STIs testing and therefore, such persons would avoid opting for STIs-test:

"STIs are very much stigmatized here. That's a serious issue and that's why I don't think people go and get tested as much." (RP-1, Focus group interview).

Table 2. Demographic characteristics of participants.

Participant Code	Gender	Age	Education Level
Focus groups interviews			
RP-1	Male	42	University
RP-2	Male	33	University
RP-3	Male	46	Vocational/Training School
RP-4	Male	45	Senior High School
RP-5	Male	45	Senior High School
RP-6	Male	35	Vocational/Training School
RP-7	Male	35	University
RP-8	Male	38	Junior High School
RP-9	Male	40	Vocational/Training School
RP-10	Male	42	Vocational/Training School
RP-11	Male	34	Senior High School
RP-12	Male	43	Elementary School
RP-13	Male	44	Senior High School
RP-14	Male	40	University
RP-15	Male	39	Junior High School
RP-16	Male	39	Vocational/Training School
RP-17	Male	46	Senior High School
RP-18	Male	44	Vocational/Training School
RP-19	Male	40	Senior High School
RP-20	Male	37	Senior High School
RP-21	Male	42	University
RP-22	Male	41	Senior High School
Face-to-face in-depth interviews			
RP-23	Male	35	Elementary School
RP-24	Male	42	Senior High School

Table 3. Men's perceptions of STIs, men's involvement, and barriers to STIs prevention among men in the affected area by the Merapi eruption 2010.

Themes	Categories
3.1. Socio-cultural and environmental factors	3.1.1. Misconceptions
	3.1.2. Stigmatization
	3.1.3. Taboo
	3.1.4. No cooperative
	3.1.5. Unwillingness to disclose STIs status
	3.1.6. No telling reproductive health matters to partner
	3.1.7. No time and busy
	3.1.8. No condom use
3.2. Internal factors	3.2.1. Lack of knowledge on STIs
	3.2.2. Inadequate SRH information for men
	3.2.3. Lack of access to health information
3.3. Men's participation	3.3.1. Accompany partner for STIs testing
	3.3.2. Health support and protect for partner
3.4. Primary health care services	3.4.1. Lack of privacy in an STIs clinic

Source: Primary data (2017)

3.1.3. Taboo

Women were more willing to share their SRH problems with female health workforces such as midwives, nurses and community health volunteers (*health cadres*). However, providing healthcare services by male health workforces, it kept women from openly talking about SRH issues such as menstruation disorders, contraceptive methods and STIs:

"Actually, men have not been welcomed for providing sexual and reproductive healthcare services for female disaster survivors at the shelter." (RP-18, Focus group interview).

"The female disaster survivors who had sexual and reproductive health needs just waited for a midwife and some health cadres for meeting their needs." (RP-21, Focus group interview).

3.1.4. No Cooperation

Men had no intention of talking about any SRH topics and avoided such discussions. Participants mentioned that only a few men attended to the SRH health promotion provided by midwives at the public health center:

"Men didn't come, they only drop their wife and leave. Actually, we had some health promotion and education programs for men about STIs and HIV/AIDS at the public health center but they didn't attend." (RP-9, Focus group interview).

"Male sexual and reproductive health issues have been usually ignored before and after disasters and so, men's health issues need to be addressed in emergencies and disasters." (RP-10, Focus group interview).

3.1.5. Unwillingness to Disclose STIs Status

Participants reported that many men do not think that it is important to participate in SRH issues. They tried to avoid having STIs testing:

"…That's a serious issue and that's why I don't think people go and get tested as much." (RP-1, Focus group interview).

"They are afraid of being disclosed regarding a case of STIs and/or their own disease status, so they would not follow the case." (RP-22, Focus group interview).

3.1.6. No Telling Reproductive Health Matters to Partner

Some of the participants lamented that the men do not fulfill their responsibility of informing their partners when they were experiencing the SRH-related illness:

"Culturally, a husband doesn't like to talk and discuss sexual and reproductive health problems with the wife." (RP-3, Focus group interview).

"I don't have the courage to tell my wife about gonorrhoea and stuff like that. She would think I was with someone else." (RP-23, Face-to-face in-depth interview).

3.1.7. No Time and Busy

Participants mentioned that it was difficult to invite and cooperate with men because they have to work. In addition, reasons for being too busy included paid work and socio-cultural factors like patriarchal family.

"They claimed to be so busy and having no time because they have to work." (RP-9, Focus group interview).

"Mostly males are as main persons involved in income generation for their family so they are too busy with their occupations." (RP-20, Focus group interview).

3.1.8. No Condom Use

Participants mentioned that men felt embarrassed and are uncomfortable while buying condoms at the convenience store and/or drug store since the condom has been considered by many to be associated with free sex and immorality:

"I am embarrassed to buy a condom so I never use condoms. And, I do not feel comfortable using a condom." (RP-24, Face-to-face in-depth interview).

3.2. Internal Factors

3.2.1. Lack of knowledge on STIs

Some of the participants argued that the misconceptions regarding STI existed because of the knowledge and understanding of STIs among local people are inadequate:

"Not all local people here know and understand what STIs is. They thought STIs is similar to HIV/AIDS." (RP-14, Focus group interview).

3.2.2. Inadequate SRH Information for Men

Most participants told that the messages specifically for men about STIs are few, almost about HIV/AIDS:

"There are some health information about STIs on TV, radio but specifically is not for men, only for women. We think men need to really be addressed." (RP-2, Focus group interview).

3.2.3. Lack of Access to Health Information

Participants mentioned that friends are the main source of information about SRH topics. Wrong information they received on STIs could make them encourage in unsafe sexual practices:

"We heard information about STIs from friends, yeah our friends. We felt more relaxed to talk about it with friends." (RP-4, Focus group interview).

3.3. Men's Participation

3.3.1. Accompany Partner for STIs Testing

Most participants reported that only a few men here accompanying their spouses to the public health center for testing and counseling. As a result, men do not think that it is important to participate in SRH issues:

"Few husbands accompanied their wife while their spouse was getting sick and pregnant when we were evacuated at the temporary shelter." (RP-16, Focus group interview).

3.3.2. Health Support and Protect for Partner

Participants clearly identified negative outcomes related to the lack of men involvement:

"Husbands need to be involved in decisions because we have the problem of wives having poor access to care because husbands make all the decisions at home, then the husbands don't allow wives to come to the public health center for information and care." (RP-2, Focus group interview).

3.4. Primary Health Care Services

3.4.1. Lack of Privacy in an STIs Clinic

Participants mentioned that men do not want to come to the public health center due to lack of patient confidentiality:

"I do not usually want to accompany my partner for STIs testing and/or counseling due to the lack of privacy in STIs clinics so I am afraid of being disclosed regarding my health status." (RP-24, Face-to-face in-depth interview).

Further, data related to the SRH issues of disaster survivors were written in the notebook paper prepared by different healthcare providers in the shelter:

"We just designed notebook paper for documenting data on sexual and reproductive healthcare services we had provided in the shelter. In fact, we have no access to data on sexual and reproductive health before the Merapi eruption 2010." (RP-6, Focus group interview).

4. DISCUSSION

The STIs have been recognized as major public health issues in many countries. STIs include HIV/AIDS thrive under crisis conditions, which coincide with limited access to the means of prevention, treatment and care. In the emergency and disaster, access to contraceptives can be a major challenge. Transportation routes may be cut-off, distribution networks dissolved and health facilities destroyed. Existing supplies may fall far short of demand when large numbers of people move into a safer location. Free condoms are often the first step towards restoring family planning services, made available from the earliest stages of a relief operation. When planning programmes, the involvement of women and men from the populations affected by the crisis helps ensure appropriate and effective family planning services. In the context of Indonesia, however, the findings indicated that SRH services were provided for only women in the affected area by the Merapi eruption 2010. Although men play important roles in family planning and contraception methods, however, their SRH needs are not considered by health care providers. That is, SRH services have been organized based on women's needs. The previous study [15] revealed that older men tend to discourage contraceptive use methods and may also resist modern contraceptive use because of cultural beliefs and religious beliefs. Men may make decisions for SRH management at the local and national level, but they deny their own SRH. Consequently, women are more vulnerable to sexual abuse in disaster situations, and may be forced into sex for basic needs such as food, clean water, shelter, and health security.

In addition, the impacts of disasters are felt differentially within societies, and those most socially excluded and economically insecure bear a disproportionate burden. Evidence has highlighted the serious impact of natural disasters on women including increased violence against women. Increases in intimate partner violence were reported following the eruption of Mount Pinatubo in the Philippines (1991), after Hurricane Mitch in Nicaragua (1998), and after the Loma Prieta earthquake in the United States (1989) [16]. The South Asian tsunami in 2004 brought to light the differential impact of the disaster on women and men, as evidenced in the greater number of deaths of women due to restrictive social roles and disadvantages in terms of access to resources [17]. Therefore, if the access to the STIs prevention, treatment, care and support is not addressed and ensured, the vulnerabilities and health insecurity including STIs would increase during emergencies and disasters.

Regardless of medical advances, the STIs continue to pose a threat to the health and welfare of persons owing to their substantial morbidity, associated mortality, and disproportionate burden upon women and marginalized communities [18]. This study revealed that there was a reduction in the use of the STIs services in the public health center among persons living with STIs due to social disruption and fear of stigma in Sleman District. Socio-cultural and environmental factors, taboos and the lack of knowledge make open discussions difficult. In line with the findings, the study in Africa [19] also revealed that this might be because of the cultural belief that open discussion about sexual issues is taboo. STIs transmission can increase as a result of people not seeking health care. Moreover, factors contributing to the transmission of STIs include inaccessibility of STIs services, unsafe environmental conditions, and an increase in the transactional of sex for livelihood assets as one way to cope with the emergency and disaster situations. In Lufugu camp, transactional sex without condom use occurred post-displacement indicating that disruption and displacement can be a possible coping mechanism during crisis affliction [20]. In overcrowded camps, discrimination, safety and security issues are among stressors that exacerbate anxiety in refugees [21 - 23]. Sexual gratification is a relatively common way for some adults to relieve stress then. As a result, those of disaster survivors either living in camps or shelters may encounter human-health insecurity issues.

Meanwhile, the prevailing cultural norms in Sleman District have determined the men's participation in women's SRH issues. The socio-cultural and environmental factors have influenced men's participation. Consequently, gender norms and socio-cultural factors have created an environment where a majority of men are not expected to be actively involved in SRH issues. Gender norms can affect male involvement in SRH issues [24 - 26]. Men frequently perceive reproductive health services to be designed and reserved for women, thus were embarrassed to find themselves in such "female" places [27]. These problems are deeply related to a lack of access to appropriate information about STIs and limited practice based on their knowledge and understanding.

Fig. (**1**) shows the factors affecting men's participation in STIs prevention including socio-cultural and environmental factors, internal factors, men's participation, and primary health care services. Health status is a key factor for the vulnerability of individuals in the community towards disasters. Disasters can be considered an opportunity to improve SRH management in emergency situations. Strategies to build and increase awareness and understanding risk on SRH issues should be given priority at the clinical and community levels. To help meet the SRH needs of displaced persons in emergency and disaster situations and to improve SRH health

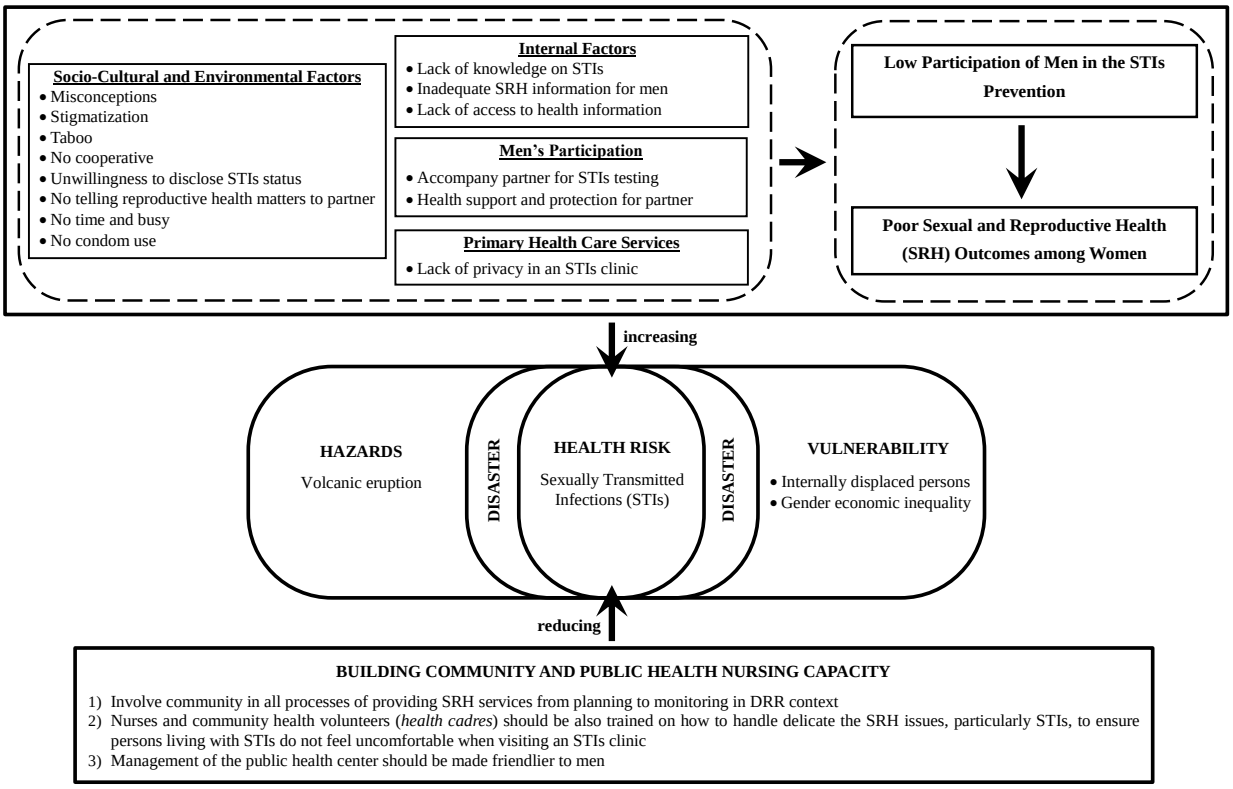

Fig. (1). Factors affecting men participation in the STIs prevention including socio-cultural and environmental factors, internal factors, men's participation, and primary health care services.

outcomes of women, there are some recommendations to solve the problems, namely: 1) Involve community in all processes of providing SRH services from planning to monitoring in DRR context, 2) Nurses and community health volunteers (*health cadres*) should be also trained on how to handle delicate SRH issues, particularly STIs, to ensure persons living with STIs do not feel uncomfortable when visiting an STIs clinic, and 3) management of the public health center should be made friend-lier to men. Thus, preparations for and responses to disasters need to be sensitive to gender dimensions of health care and health-seeking behaviors. Further, the aim of placing socio-cultural sensitivity in DRR is not to blame the existing socio-cultural environment but to raise awareness of the important dimensions of vulnerability.

The main limitation of the present study was the lack of assessing the SRH data after disasters. It was due to the fact that the persons living with STIs are hidden residents in the communities. The researchers encountered challenges that limit the ability to access the potential participants in the study area. Moreover, most participants recognized the background of the first author as a nurse and it might affect the way they provided the information related to the SRH problems.

CONCLUSION

The study revealed that socio-cultural and environmental factors, internal factors, men's participation, and primary health care services affected to the low participation of men in STIs prevention. Low participation of men in STIs prevention has led to poor SRH outcomes among women. Area of disaster has increased risk factors such as multiple partners, easy mobility, transactional sex and forced sex that increase the incidence and prevalence of development of STIs. Access to condoms, appropriate information and education about SRH issues and safe sex practices were inadequate. Moreover, knowledge does not always translate into behavior change. Consequently, women become more vulnerable to SRH problems, particularly STIs, even after disasters.

Nurses have a main role in DRR to create awareness and making people understand the risk associated with future disasters. Thus, it is necessary for nurses and other health professionals involved in DRR to optimize coordination with community leaders, community health volunteers (health cadres), and other stakeholders for preventing the transmission of communicable diseases in the community.

LIST OF ABBREVIATIONS

AIDS	=	Acquired Immune Deficiency Syndrome
DRR	=	Disaster Risk Reduction
HIV	=	Human Immunodeficiency Virus
SDGs	=	Sustainable Development Goals
SEARHEF	=	the South-East Asia Regional Health Emergency Fund
SRH	=	Sexual and Reproductive Health
STIs	=	Sexually Transmitted Infections

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was carried out with approval from the Institutional Review Board/Ethics Committee both at the University of Kochi in Japan (Reg No.: 16-40/Nov/24/2016) and the Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada in Indonesia (Ref No.: KE/FK/0188/EC/2017). There was also additional approval from the local government.

HUMAN AND ANIMAL RIGHTS

Not applicable.

CONSENT FOR PUBLICATION

In the first meeting, the first author explained about the aim of the study, the role of researcher and participants, and informed consent before either focus group or face-to-face in-depth interview commenced. Written informed consent was signed by each participants. They were made aware of ethical and secrecy (anonymity in publishing).

AVAILABILITY OF DATA AND MATERIALS

Data is available from the corresponding author on request.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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