Husband’s Experiences of Recurrent Pregnancy Loss in Japan: A Qualitative Study

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Research article

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Abstract

Background: Miscarriage or stillbirth is an experience of losing a child. However, in a clinical setting, men are positioned to support women. Therefore, mental support for men is insufficient. It is predicted that marital mourning in men will affect marital relations if it does not go smoothly. This study aimed to clarify the experiences of husbands in couples suffering from recurrent pregnancy loss (RPL) in Japan and clarify the support based on the husband's needs.

Methods: Semi-structured interviews were conducted with 14 husbands attending the outpatient treatment for RPL at visiting clinic of a University Hospital A in City A. The interview data were analyzed using a qualitative descriptive approach.

Results: The husbands' experiences were classified into 13 categories. Based on the interview data, the husbands felt shock of first pregnancy loss, and then while experiencing lingering anxiety regarding pregnancy loss and feeling less grief over subsequent pregnancy losses, they made an effort to accept recurrent loss. Husbands were feeling apologetic to one's wife, resulting in prioritizing one's wife and performing actions toward wife with good intentions. Moreover, after experiencing repeated pregnancy losses, husbands felt feelings of hopelessness caused by RPL, while craving for a child and giving up on having a child, and experiencing difficulty faced in sexual relations while maintaining a distant but steady marital relationship. Husbands were hoping that family members would quietly offer support and engaged in stance at work of not wanting people to mention RPL.

Conclusions: The husband with RPL supported his wife while suffering from the mental burden of a miscarriage or stillbirth and was isolated in a relationship. Medical professionals should be able to advocate for husbands in couples suffering from RPL to help them voice their feelings to their wives; moreover, frameworks need to be established to support good marital relationships and psychologically support the husbands of such couples.

Background

Recurrent pregnancy loss (RPL) is defined as “A man and a woman of reproductive age hoping to achieve pregnancy and being able to achieve pregnancy but being unable to deliver a living child, i.e., suffering from recurrent miscarriages and/or stillbirths.” Causes of RPL include antiphospholipid antibody syndrome, abnormal uterine morphology, and structural chromosomal aberration of the couple [1]. RPL has been reported to affect 4.2% of the couples in Japan [2]. Moreover, RPL significantly affects the physical, psychological, social, and economic state of the couple because of the difficulty in bearing a child and stress caused by repeated losses because of miscarriage and/or stillbirth. While the effects of RPL on women have been investigated in many previous studies [3–12], only a few studies have been conducted that focused on the context of men in couples suffering from RPL [13, 14]. When a miscarriage or stillbirth occurs, the man loses a child and is considered a supporter for the woman who suffers from the heavy physical burden of miscarriage or stillbirth. Therefore, few studies have
investigated the psychological support for the husband in such couples [15, 16]. In Japan, many people conform to the stereotypical image of a man as requiring to be manly, and there is a significant correlative relationship between attitude and emotional suppression in male roles [17], in which men are supposed to fulfill their role as a husband by suppressing their emotions. This is considered to lead to discrepancy between men and women in how they deal with grief. Although the husband in Japanese couples suffering from RPL also suffers from the loss of miscarriage or stillbirth, they rarely express their sadness like their wives and do not feel the need to talk about the miscarriage or stillbirth [18]. Similarly, while the wives in Japanese couples suffering from RPL communicate with their parents and friends as a means of coping with the stress that they experience, the husbands in such couples are engrossed in work or hobbies and have only a few people with whom they can consult [19]. Considering this, Japanese men have only few opportunities to express their feelings because they tend to suppress their emotions, including grief. However, it appears that Japanese men have been forced into behaving in such manner rather than being intentionally uncommunicative about their feelings. Hada reported that husbands in couples suffering from RPL want to communicate with people who are also in the same situation as theirs and also want to receive support and desire a construction of a peer support network [15]. Since most consultation desks in medical facilities generally cater to women's needs, a support system for men in couples suffering from RPL is lacking. Furthermore, outside of Japan, grief following miscarriage or stillbirth in men in couples suffering from RPL was associated with poor sexual relationships [13]. It is observed that the strong feeling of grief experienced by the husband tends to alter his sexual intimacy with his wife. Similarly, men suffering from RPL are likely to experience anxiety and depressive tendencies and are at risk of erectile dysfunction [14]. Moreover, psychological depression and grief experienced by men suffering from RPL affect the couple's relationship. Based on statistics, the divorce rate among couples with no experience of miscarriage is 3.0%. Moreover, when couples experience one miscarriage, the divorce rate increases to 4.7%, and that of couples suffering from RPL is 8.8% [2]. Furthermore, the different perspectives of the husband and wife on miscarriage or stillbirth can lead to feelings of isolation, affecting the couple's marital relationship [20]. If husbands suffering from RPL suppress their emotions and do not receive adequate grief support, this could stall the grieving process, resulting in a negative effect on the marital relationship. Although husbands in couples suffering from RPL possibly experience feelings and emotions of grief that are different than those experienced by women, no studies have investigated the experiences of husbands in Japanese couples suffering from RPL. As the first study to investigate the experiences of husbands in Japanese couples suffering from RPL, we hope to encourage the establishment of a support system oriented toward their requirements. Hopefully, this will promote the understanding of husbands’ feelings toward their wives, which they were previously unable to talk about, thereby preventing feelings of isolation within the couple and maintaining a good marital relationship.

**Methods**

**Design**
A qualitative descriptive research design was used. The data analyzed in this study were the individual and complex experiences of husbands suffering from RPL. Through repeated experiences of miscarriages and/or stillbirths, it is considered that the grief they experience will change over time and that they will feel a range of emotions toward those around them, including their wives and unborn child. The descriptions in this qualitative descriptive study will be presented as words used in everyday life to describe daily occurrences. Therefore, this study is not interpretive and contains little extrapolation. Rather, it focuses on data, actual words, and incidents. Qualitative descriptive studies are naturalistic research with no specified methodological framework: this non-experimental research method does not alter the environment with which one is presented, thus making it possible to closely examine the phenomena or situations of interest [21]. Thus, the researchers felt that a qualitative descriptive type of research would be appropriate for clarifying the experiences of husbands suffering from RPL as this study is based on their personal viewpoints on their experiences.

**Definition of term**

The term “experiences” refers to a complex process in which husbands suffering from RPL experience a range of emotions, conflicts, positive/negative emotions toward themselves and those around them, moral actions, and thoughts on support that arise over the time period during which their wives suffer from repeated miscarriages and/or stillbirths.

**Setting and sample**

In this study, a request for cooperation was accepted by the University Hospital A in City A. The researchers then conducted interviews at the timepoints described as follows: Upon receiving consent after researchers briefed the couples undergoing an outpatient examination on the nature of the study through verbal and written explanations

1. Upon receiving consent after researchers briefed the couples undergoing an outpatient examination (supervised by their attending physician) on the nature of the study through verbal and written explanations

2. Upon receiving the study approval form (obtained from the outpatient examination) of the consenting husband

The interview content is shown in the additional file 1.

The inclusion criteria for the research participants in this study are as follows:

1. Husbands in couples suffering from RPL, whose wives had experienced miscarriage or stillbirth at least twice and who were currently in a marital or de facto relationship with their wives, regardless of
any live births before or after any occurrence of miscarriage or stillbirth. If the wife had remarried, experiences of miscarriage or stillbirth with her previous husband were not included

2. Able to read and write in Japanese
3. Understands the purpose of the study and consents to participate
4. Presenting with no existing mental illness/diagnosis

The study was conducted from November 2015 to November 2016.

**Measures**

Semi-structured interviews were conducted in the same order according to the interview guide. During the interview, all the items were reviewed and discussed. Moreover, the subject's facial expressions were observed and noted as a reference for analysis. The interview guide [15] was used in pre-interviewing a married male nurse with a Master's degree who had engaged in qualitative research. Based on his suggestions, the interview guide was then revised accordingly and covered the following items:

1. Husbands' feelings regarding the first miscarriage or stillbirth
2. Husbands' feelings regarding the second and subsequent miscarriages or stillbirths
3. Husbands' opinions on their wives' feelings during miscarriage/stillbirth
4. Changes in husbands' feelings depending on the number of miscarriages/stillbirths
5. Husbands' opinions on the changes in the marital relationship caused by miscarriage/stillbirth
6. What husbands wanted from their family/workplace when experiencing a miscarriage/stillbirth

Interviews were taped using an IC recorder after receiving the consent of subjects.

**Analysis method**

Recording transcripts were prepared based on the interview content. Using the method of Kayama (2007), the transcripts were read over repeatedly focusing on the husbands’ experiences [22]. Experiences were then documented according to the chronological processes from the initial miscarriage or stillbirth to grasp an overall picture of the situation. For analysis, the transcripts were carefully read, summarized in accordance with the semantic content, and then codified. The researchers then compared the content based on similarities and differences and compiled the shared and related codes to create subcategories. To verify the interpretation validity, the participants were asked to confirm the documented data of their experiences, followed by member verification. As for the stringency of the analysis results, opinions were exchanged between the researchers and qualitative research experts in the fields of midwifery and maternal health, and adjustments were made until reaching a consensus.
Ethical considerations

Both members in the couples suffering from RPL were briefed on the nature of the study through verbal and written explanations, and their consent forms were obtained upon request. They were not subject to any medical or nursing disadvantages if they refused participation. The interview guide was reviewed beforehand by a clinical psychologist, considering the psychological burden placed on the participants. Moreover, the interviews were conducted in rooms where privacy could be ensured, maintaining a supportive and receptive attitude. If a participant was judged to suffer from psychological instability, the interview was temporarily stopped, and it was checked whether the participant wanted to continue with the interview. When necessary, support was offered by a specialist in psychology. The interviews were conducted by the author who is an infertility counselor. Transcripts were prepared by an external operator while ensuring anonymity. Data were stored in a lockable cabinet. While both members in the couples were briefed on the purpose of the study, the husbands’ comments were not disclosed to their wives. All participants provided consent for the publication of the study results in a manuscript as well as for presentation at scientific conferences and seminars for medical professionals. This study was approved by the IRB of the affiliated institution, Kawasaki University of Medical Welfare (15-031, Aug. 5, 2015), and the implementing facility, Graduate School of Health Sciences, Okayama University. (T15-03, Jul. 24. 2015).

Results

Participants’ background

Table 1 shows the participants’ backgrounds. The amount of time that had passed after the last miscarriage/stillbirth ranged from 2 months to 4 years (unknown: 2); one of the participants had remarried and had two biological children with his ex-wife. One interview was conducted with each subject. The mean interview time was 58 min (42–91 min). One of the participants was excluded because it was discovered in an interview that his wife had two miscarriages/stillbirths with her ex-husband. Therefore, a total of 14 participants were included in the analysis. Only five husbands would finish work regularly on time, and one participant was currently on leave because of depression. Only two families were considered a complex family, whereas three families had children.
| Husband’s age | Wife’s age | Number of miscarriages | Period of marriage | Have children |
|---------------|------------|------------------------|-------------------|--------------|
| A 29          | 29         | 3                      | 4 + 9             | Yes          |
| B 38          | 38         | 2                      | 0 + 7             | No           |
| C 38          | 39         | 2                      | 6 + 2             | Yes          |
| D 43          | 40         | 2                      | 1 + 6             | No           |
| E 34          | 34         | 4                      | 7 + 0             | Yes          |
| F 44          | 36         | 3                      | 1 + 3             | No           |
| G 33          | 30         | 2                      | 2 + 10            | No           |
| H 44          | 43         | 2                      | 1 + 0             | No           |
| I 52 (remarriage) | 40       | 5                      | 5 + 7             | No           |
| J 38          | 40         | 4                      | 4 + 3             | No           |
| K 43          | 39         | 4                      | 5 + 11            | No           |
| L 45          | 40         | 2                      | 2 + 7             | No           |
| M 34          | 37         | 10                     | 7 + 11            | No           |
| N 38          | 41         | 3                      | 3 + 10            | No           |

Notice: Some items are deleted for maintaining the anonymity of study participants.

**Experiences of husbands in couples suffering from RPL**

Thirteen categories were created based on the analysis of the husbands’ experiences. Categories were presented in bold gothic font, subcategories in gothic font, participants’ words in italics, and participant’s names as initials. Brackets were used to denote the author’s interpretations.
| Category                          | Subcategory                             | Code                                                                 | Participant |
|----------------------------------|-----------------------------------------|----------------------------------------------------------------------|-------------|
| Shock of first pregnancy loss    | Completely unexpected                   | The first pregnancy loss was completely unexpected – it took me by surprise | C           |
|                                  |                                         | I was so happy when I found out that my wife was pregnant and I thought that it would naturally progress normally | D           |
|                                  |                                         | I thought that a healthy pregnancy and birth would naturally occur without a hitch | G           |
| Blanking out because of grief    | I also wanted to cry                     |                                                                       | F           |
|                                  | The shock made me blank out             |                                                                       | L           |
| Deep regret over first pregnancy loss | I felt deep regret over the first pregnancy loss |                                                                      | A, G, I, J, L |
|                                  | The strong elation I felt over the first pregnancy resulted in me also experiencing strong grief over the loss |                                                                      | C           |
|                                  | Because of the difficulty of the first pregnancy loss, we stopped using the timing method |                                                                      | E           |
| Lingering anxiety regarding pregnancy loss | Each time pregnancy loss is experienced, I am increasingly fearful that pregnancy loss will occur again |                                                                      | A, D |
| Anxiety regarding pregnancy loss | Because of anxiety regarding pregnancy loss, I try not to celebrate the pregnancy until it has reached the stable phase |                                                                      | E           |
|                                  | I find it difficult to go to the hospital checkups because I feel that the fetus’ heartbeat might stop again |                                                                      | J           |
|                                  | Until the heartbeat is confirmed, I am anxious about whether the fetus will develop |                                                                      | K           |
|                                  | I do not know what will happen to the second pregnancy so I make an effort not to think about the fetus |                                                                      | L           |
|                                  | I feel a strong sense of anxiety regarding pregnancy loss as soon as I become aware of the pregnancy |                                                                      | N           |
| Constantly aware of the          | I definitely feel that the same thing   |                                                                       | C, E        |
| Possibility of pregnancy loss | (pregnancy loss) might happen again with the second pregnancy |
|-----------------------------|-------------------------------------------------------------|
| When I found out about the third pregnancy, I started thinking about how to psychologically support my wife if she suffered pregnancy loss | F |
| There is a part of me that feels that I must not get excited about the pregnancy | L |

| Feeling less grief over subsequent pregnancy losses | Thinking “it’s happened again” |
|----------------------------------------------------|--------------------------------|
| The second and third pregnancy losses had a sense of “it’s happened again,” and they were not as painful as the first pregnancy loss | E, I |
| The first pregnancy loss was truly saddening while the second and third had a sense of giving up, feeling “it’s happened again.” | N |

| Suffering from less pain over pregnancy losses | Although this is scary to admit, the pain honestly subsides when you experience pregnancy loss multiple times |
|------------------------------------------------|--------------------------------------------------------------------------------------------------|
| You get used to the pain and the difficult period gradually gets shorter | A |
| While the third and fourth pregnancy losses were as painful as the second, they were not as painful as the first | E, K |
| The feeling caused by the first pregnancy loss is 100% grief but the subsequent pregnancy losses cause other feelings | F |
| The feeling caused by the first pregnancy loss is 100% regret, but this gradually decreases to 80% and 60% as more pregnancy losses are experienced | I, K |

| Effort to accept recurrent loss | Trying to divert one’s attention by considering the situation to be unavoidable |
|--------------------------------|------------------------------------------------------------------------------|
| As we realized that risks were higher the older my wife was, we considered it to be unavoidable | B, N |
| I try to divert my attention by focusing on the fact that there is still hope for another child as long as my wife is alive | C |
| I try to accept it by thinking that the timing was just off | G |
| There is nothing that can be done about not being able to conceive – you | I, N |
| Task                                                   | Description                                                                                                                                                                                                 | Label(s) |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Just have to accept it                                 | Although I suffer from lingering pain for around a week, I regain my calm by then focusing on the future                                                                                            | M        |
| Trying to take their minds off their grief by diverting their minds as a couple | We invite each other on trips away to take our minds off the situation                                                                                                                                     | E, L     |
|                                                        | I try to help my wife to vent her feelings by taking her on trips and eating out together to turn my wife's pain into something positive                                                                     | L, M, N  |
| Affixing significance to the lost fetus                | I think that the fetus was born at just the right time for the fetus itself                                                                                                                                  | C        |
|                                                        | The lost fetus is always on my mind – I wonder what kind of child it would have become if it had been born healthily                                                                                         | C        |
| Holding a memorial service for the lost fetus          | We placed a photograph of the fetus in a temple and we hold a memorial service for the child at home by offering water                                                                                      | K        |
|                                                        | We go to the temple as a couple for a memorial service                                                                                                                                                    | B, L     |
| Finding balance between grieving and work             | I kept asking myself unanswerable questions about recurrent pregnancy loss, but my work prevents me from thinking too much about it                                                                           | F        |
|                                                        | It is painful to have to continue working through the negative spiral of eventually suffering recurrent pregnancy loss                                                                                      | J        |
| Noticing one's own grief                              | I want to express the feelings of sadness that I bottled up inside because I had to support my wife                                                                                                         | F        |
|                                                        | I noticed that I was grieving over the fact that a piece of myself would not be passed onto future generations                                                                                             | N        |
| Feeling apologetic to one's wife                       | Worrying about the physical and psychological burden of pregnancy loss on one's wife                                                                                                                        | E        |
|                                                        | We have sexual relations less often as I feel that another pregnancy loss would damage my wife physically and emotionally                                                                               | E        |
|                                                        | What is more painful than my own sadness is the physical and emotional pain that I see my wife go through                                                                                                | F, J, K  |
|                                                        | Although I would like to have a child, I am willing to give that up if it is                                                                                                                                | G        |
| Prioritizing one’s wife | I suppress my feelings in order to support my wife | Naturally trying to support one’s wife | Prioritizing one’s wife’s feelings regarding whether to keep trying to have a child |
|-------------------------|---------------------------------------------------|--------------------------------------|----------------------------------------|
| I am sure that the loss was more shocking to my wife as she actually experienced the pregnancy inside of her | I quickly switched over to the role of supporting my wife seeing her situation | Although I cannot exactly say that I am doing fine, it is natural that I need to support my wife | Although I would accept any method to have a child, the most important thing is my wife’s feelings |
| It was my fault for getting my wife pregnant so I feel sorry for her | When my wife vents her true feelings, I provide a listening ear | The fact that we are a married couple means that I need to support my wife – if I can no longer support her, we should separate | I will keep trying as long as my wife keeps trying and if she gives up, I will give up too |
| | I do not voice my feelings as I realize that this would place a burden on my wife and increase her feelings of self-loathing | I want to help my wife to reach a normal psychological state | If my wife, who will no doubt experience greater suffering than I will |
| | Although I experienced pain, I feel that I need to take the lead as my wife must be experiencing even more pain | | |
| | As my wife must be even more depressed than me, I feel that I need to offer emotional support when she suffers from pregnancy loss | | |
| | I probably keep on suppressing my feelings | | |
| | As my wife experiences more intense sadness, I feel like there is no room for me to feel sadness | | |
| | Although I would accept any method to have a child, the most important thing is my wife’s feelings | | |
| | I will keep trying as long as my wife keeps trying and if she gives up, I will give up too | | |
| | If my wife, who will no doubt experience greater suffering than I will | | |
(if further pregnancy loss occurs), wants to keep trying so, as long as I am married to her, I will obey her wishes

| Feeling sadness over one's wife's sadness | The most painful thing is seeing my wife full of regrets | D |
|------------------------------------------|--------------------------------------------------------|---|
|                                          | I feel greater sadness watching my wife grieve than over the pregnancy loss itself | B, H, N |

| Considering one's wife's physical and mental state | Although I want a child, I feel sorry for my wife who really wants to become a mother | B |
|----------------------------------------------------|---------------------------------------------------------------------------------|---|
|                                                    | When I contact my wife and she tells me that she is fine, I feel relieved | D |
|                                                    | I feel excessive worry about my wife's physical state the more pregnancy losses that she experiences | E |
|                                                    | I worry about how much pain my wife is experiencing as a result of pregnancy loss | I, J |

| Sympathizing with one's wife | I do my best to support my wife until she can converse normally and smile | C |
|------------------------------|-------------------------------------------------------------------------|---|
|                              | I do the housework because it is my wife who has to experience pain and undergo surgery following the pregnancy loss | E |
|                              | I comfort my wife, telling her that the timing was just bad and that nobody is to blame | G |
|                              | I try to offer different alternatives so that my wife does not dwell on the fact that the pregnancy did not progress well | H |
|                              | I try to imagine how my wife feels, saying, “It’s a pity” or “You went through a lot” | I |
|                              | I comfort my wife, saying, “I know you’re in pain but you will heal over time. Time is the only thing that can heal you” | J |

| Acting toward one's wife with good intentions | Not speaking about the topic of pregnancy loss | Even if my wife is depressed, we do not mention the pregnancy loss in our conversation | A |
|------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------|---|
| Talking does not solve anything so I do        |                                                                                     | G |
| Topic                                                                 | Description                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| not bring up the topic myself, but if my wife brings it up, I talk about it with her | As this topic only elicits feelings of sadness for the both of us, I make every effort to avoid the topic because I do not want to remind my wife of it                                                                                                                                                                                                                           |
| As the loss was caused by my wife and she naturally blames herself, I do not say anything that will add salt to the wound |                                                                                                                                                                                                                                                                                                                                                                 |
| I do not delve into the topic of the pregnancy loss as it would just be damaging to the both of us |                                                                                                                                                                                                                                                                                                                                                                 |
| Acting as if everything is normal                                     | I do not act abnormally kind toward my wife or try to encourage her – I just treat her normally                                                                                                                                                                                                                                                                       |
| If I act differently, it will just worry my wife                      |                                                                                                                                                                                                                                                                                                                                                                 |
| Although sometimes she is silent, we also talk about various things as we go about our normal daily lives |                                                                                                                                                                                                                                                                                                                                                                 |
| Although I do not want my wife to think that I am not in shock as well, I make an effort to try to go about my daily life normally |                                                                                                                                                                                                                                                                                                                                                                 |
| Husband’s actions toward wife with good intentions                   | I try to think up ways to treat my wife that suit her personality                                                                                                                                                                                                                                                                                                    |
| We try to share our feelings of sadness together without covering it up |                                                                                                                                                                                                                                                                                                                                                                 |
| Feelings of hopelessness caused by recurrent pregnancy loss           | Feeling hopeless about the fact that the proof of one's existence will disappear                                                                                                                                                                                                                                                                                   |
| Feeling drowned in the shock of experiencing recurrent pregnancy loss | Feeling drowned in the shock of experiencing recurrent pregnancy loss                                                                                                                                                                                                                                                                                                  |
| Feeling hopelessness about the fact that the proof of one's existence will disappear | I am unable to imagine what it would be like for the pregnancy to continue successfully and unable to picture it resulting in a healthy birth                                                                                                                                                                                                                       |
| Even if my wife falls pregnant, I feel anxious about the future as to whether it will result in a healthy birth |                                                                                                                                                                                                                                                                                                                                                                 |
| I have a constant sense of sadness that there will be nobody to take my place after me and that our future will be cut off |                                                                                                                                                                                                                                                                                                                                                                 |
| Feeling drowned in the shock of experiencing recurrent pregnancy loss | Even if we have one child, after experiencing pregnancy loss three times, we just want to know why this is happening                                                                                                                                                                                                                                                      |
| It took time for me to deal with my B                                |                                                                                                                                                                                                                                                                                                                                                                 |
feelings after learning for the first time about recurrent pregnancy loss as a disease

| Upon knowing about the recurrent pregnancy loss for the first time, I feel like if we experience this another time, it would be easier to be suffering from infertility | B |
|---|
| After the third pregnancy loss, I just have a continuous sense of deep sadness | F |
| After experiencing the unbearable pain of a third pregnancy loss, I feel like if we undergo through it again, I will give up on having children | J |
| I feel completely burnt out because I have to try to cheer up my wife even though I am depressed as well | J |
| I feel anxious about the fact that my wife might not be able to conceive and even if she does conceive, she might lose the pregnancy | K |
| The third pregnancy loss rammed home the reality of “recurrent pregnancy loss” and, although I have become used to it, I cannot feel optimistic about it | M |

Unable to feel positive about pregnancy

| I cannot feel positive about pregnancy because I know that another pregnancy loss will cause my wife's grief | B |
|---|
| To be honest, I want to give up but my wife wants to keep trying so I have to cooperate even though I do not want to | J |

Resenting the recurrent loss of pregnancies

| I wonder why only we are going through this – why us? | K |

Hoping for a child and giving up on having a child

| Longing to have a child | H |
|---|
| After experiencing two pregnancy losses, I started to feel that the existence of a child was even more mystical than before | |
| No matter what monetary cost is involved, a child is worth more so I want to do all that is possible | K |
| I don't want to regret things in the end – I want to have a child so I want to undergo all treatments available | M |
| The top goal that we want to achieve | M |
as a couple is to have a child and raise one

Although my wife honestly feels that she does not want to get pregnant, it is my selfish desire that we try a little longer

| Feeling a sense of conflict on trying to give up on hoping for a child | I wonder if pregnancy and birth is really worth all of these risks |
| --- | --- |
|  | Although I nearly felt like giving up on having a child due to the shock of the third pregnancy loss, I know that raising a child will be even harder, so I want to do everything possible to overcome this challenge |
|  | When my wife got pregnant for the fourth time, I felt like giving up if we lost this pregnancy too, but both of us really want a child so we still want to keep trying |

| Difficulty faced in sexual relations | Feelings of rejection over prioritizing pregnancy |
| --- | --- |
|  | Although there is always a part of me feeling pressure to have sex when my wife is ovulating, I do not mention this to my wife |
|  | I do not enjoy sex as it feels like it is just an obsession with the aim of producing a child |
|  | When we are not able to have sex when my wife is ovulating, she gets into a bad mood, and this is psychologically distressing to me |

| Distant but steady marital relationship | Wife not noticing consideration |
| --- | --- |
|  | Actions toward my wife based on a sense of responsibility to support her actually make her suspicious |
|  | I made an effort to treat my wife normally but she said that she wants me to be kinder to her |

| Steady marital relationship despite experiencing recurrent pregnancy loss | If we did not have our first child our relationship might have changed but our current marital relationship has not changed |
| --- | --- |
|  | Although we have become more able to express happiness and voice complaints, our marital relationship has not changed in particular |
|  | It feels like time has just gone by and our marital relationship has not improved or deteriorated |
| H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|
| We are normally living a married life – I do not try to be particularly kind or encourage my wife | I definitely do not feel like the experience of recurrent pregnancy loss has reduced the quality of our marriage | Although I think I share about half of my wife’s feelings, it is natural that my wife experiences pain that she can’t express to me | As the two of us have gone through such a difficult experience together, we have built up a special relationship | Although we do argue when my wife brings up feelings that she had suppressed, we are not distant from each other | I am grateful that the family go with my wife to the hospital when I am unable to accompany her | I am grateful that our family gives us advice on various things |

| Hoping that family members will quietly offer support | Being unable to discuss subsequent pregnancies/miscarriages to family members after pregnancy loss | I do not tell my parents about pregnancies after the pregnancy loss – we only inform my wife’s mother | When we told our family about the first pregnancy, they were so happy. Since the pregnancy was not successful, our parents were really depressed | I cannot complain to my parents as they do not appear like they want to listen to me | As my parents can make hurtful comments just when my wife has been able to get over the loss, I don’t tell them about pregnancies/miscarriages | My parents do not understand even when I talk to them about it and their comments can even cause us more pain |

| A, B, N | E | J | L | M |

| Not expecting any particular support from family members | There is nothing in particular that I want my parents to do for me | I do not have deep conversations with my wife’s parents and I do not expect any support from them | | |

| E, G | F | | | |
| Stance at work: not wanting people to mention recurrent pregnancy loss | Difficulty mentioning recurrent pregnancy loss at work | Trying to cope alone |
|---|---|---|
| I am grateful to my wife's mother as my wife is able to slowly regain her composure as she talks to her | They do not pressure us about producing an heir or anything like that – our relationship is very comfortable | I do not expect any particular support from my workplace when my wife and I experience pregnancy loss |
| I am grateful that our parents did not make a big show about how unfortunate the situation is | I hope that our parents will not talk about the pregnancy loss and just get along with their lives normally | Although I inform my boss about the details of treatment, I did not receive any support in particular |
| As kind words are not necessarily supportive, I just hope that they quietly offer us support | Despite being given some consideration, it gradually gets harder to talk about the pregnancy loss | As I can deal with my feelings alone, I did not consult in depth about the pregnancy loss |
| Hoping for the family to quietly offer support | I do not mention it at all even to my closest friend at work | I cannot talk about this delicate problem that we are facing as a couple to anybody else and I do not know where I can find someone who has experienced the same thing |
| | It is difficult to talk about pregnancy loss when I need to request time off when my wife undergoes surgery | I can process my own feelings on the pregnancy loss alone and I do not get depressed |
| | I was unable to go to work after my boss hurtfully commented, “Wouldn’t it be easier if you just got a divorce?” | I talk to a friend about my feelings of sadness |
| | I do not expect any particular support from my workplace when my wife and I experience pregnancy loss | |
Some consideration received at work

| I am grateful that I was able to work where I live, in accordance with my wishes | C |
| I am grateful for my boss’s words of support when my wife faced an emergency situation | J |
| I have someone whom I can talk to which makes things a little easier | K, N |
| I am glad that I am allowed to take time off work for treatment | N |

Shock of first pregnancy loss

This category comprises three subcategories: “completely unexpected,” “blanking out due to grief,” and “deep regret over first pregnancy loss.” The men generally thought that if a woman were to get pregnant, it would progress normally and result in a normal birth. However, they did not expect a miscarriage/stillbirth at all. Therefore, suddenly experiencing miscarriage/stillbirth after the joy of seeing their wives get pregnant caused an unexpected feeling of shock, resulting in a sudden change in their emotions and making it difficult for them to comprehend the explanation given by the physician.

The first time, we really didn’t expect it at all. So, I lost control of my emotions – my emotions were really heightened, (omitted) because she was really crying hard. (C)

Lingering anxiety regarding pregnancy loss

This category comprises two subcategories: “anxiety regarding pregnancy loss” and “constantly aware of the possibility of pregnancy loss.” After the pregnancy loss, the husbands experienced almost unbearable anxiety because they reached the number of gestational weeks at which the previous pregnancy loss occurred. Once pregnancy loss occurred, they started to assume that the next time that their wives got pregnant, it would probably end in miscarriage or stillbirth again. They were unable to hope for a successful pregnancy and tried not to think about the fetus. Moreover, they tried to remain calm as they required to support their wives if they suffered a miscarriage or stillbirth. Moreover, the husbands were worried about the shock that their wife might experience.

I kept thinking it will probably end in a loss again, (the heartbeat) might stop – I really truly dreaded the days of hospital visits because I was just so worried (J)

Feeling less grief over subsequent pregnancy losses
This category comprises two subcategories: “thinking it has happened again” and “suffering from less pain over pregnancy losses.” As the husbands saw their wives experience repeated pregnancy losses, they experienced less sadness regarding the miscarriage/stillbirth and started to feel that they were accustomed to the pregnancy loss. When they became aware of this, they tended to manage their emotions.

To be honest, I really actually started to get used to it. Obviously, this was scary to me but as you experience the repeated loss of your unborn child, to be honest the pain caused by the situation does fade the more times that you experience it (A)

**Effort to accept recurrent loss**

This category comprises six subcategories: “trying to divert one’s attention by considering the situation to be unavoidable,” “trying to take their minds off their grief by diverting their minds as a couple,” affixing significance to the lost fetus,” “holding a memorial service for the lost fetus,” “finding balance between grieving and work,” and “noticing one’s own grief.”

Each couple was attempting to accept and get over their grief in their own ways. Engaging in work and trying to live a normal daily life while managing their emotions of grief was extremely difficult for the husbands. Eventually, another miscarriage would occur and this would put them into an endless negative spiral. Although the husbands were attempting to support their wives while unconsciously suppressing their sadness, they noticed that they had an impulsive desire to express their emotions.

**Feeling apologetic toward one’s wife**

This category has a single subcategory: “worrying about the physical and psychological burden of pregnancy loss on one’s wife.” Attempting to get pregnant despite having no guarantee that pregnancy would progress normally and result in a successful birth made the husbands feel apologetic toward their wives because they knew that any miscarriage or stillbirth would be physically and psychologically damaging. The husbands were pained by the fact that if a miscarriage or stillbirth occurred, the pregnancy loss would not cause them any physical damage but would cause physical and psychological damage to their wives.

I feel sorry toward my wife for getting her pregnant. After experiencing miscarriage once, my wife didn’t really want to undergo anymore fertility treatment. (Omitted) but she is going through with more treatment because I still want a child (N)

**Prioritizing one’s wife**
This category comprises six subcategories: “suppressing one's feelings in order to support one's wife,” “naturally trying to support one's wife,” “prioritizing one's wife's feelings when hoping for a successful childbirth,” “feeling sadness over one's wife's sadness,” “considering one's wife's physical and mental state,” and “sympathizing with one's wife.” Despite experiencing strong feelings of grief, the husbands suppressed their feelings as they feared that expressing them could hurt their wives' feelings. In this manner, they made an effort in prioritizing and devotedly supporting their wives. As wives had control over whether to have a child, the husbands prioritized their wives' feelings. Moreover, the husbands considered it natural that they would support their wives and were saddened by their wives’ grief. They felt their wives’ psychological and physical pain over the pregnancy loss as their own pain and were troubled that they were hurting their wives. Furthermore, the husbands offered words of comfort in an attempt to lessen the pain felt by their wives.

(When my wife blames herself) and I express my feelings, I worried that this would further increase (my wife's) sense of burden and anxiety, and that it would increase these feelings of self-loathing so I was unable to express my emotions (F)

**Acting toward one's wife with good intentions**

This category comprises three subcategories: “not speaking about the topic of pregnancy loss,” “acting as if everything is normal,” and “husband's actions toward wife with good intentions.” The husbands did not talk about the pregnancy loss as they did not want to relive their sad emotions and felt that just talking about it to their wives would compound the situation. Husbands actually tried to go about their daily lives normally so as not to worry their wives. Moreover, they considered their wives' personality and tried to act toward them with good intentions.

I don't think that my wife is someone who I can cry with – I think she actually prefers someone to tell her to stop worrying so that is how I handle the situation (H)

**Feelings of hopelessness caused by recurrent pregnancy loss**

This category comprised four subcategories: “feeling hopeless about the fact that proof of one's existence will disappear,” “feeling drowned in the shock of experiencing recurrent pregnancy loss,” “unable to feel positive about pregnancy,” and “resenting recurrent pregnancy loss.” After the third miscarriage, the husbands first learned of the condition described as RPL and were greatly shocked when faced with the reality that a child would not be born despite achieving pregnancy. The husbands felt a continued sense of hopelessness as no child would be born to carry on their genes, which means that their life would end with their death and make them unable to feel positive about pregnancy. On experiencing continuing sadness when thinking about their future, the husbands were unable to process their feelings.
When I am alone (omitted), I feel sad that if we give up on having a child, there will be nobody to carry on for me after I die. (Omitted) this sad feeling is just always with me like a continuous bass note (N)

**Hoping for a child and giving up on having a child**

This category comprises two subcategories: “longing to have a child” and “feeling a sense of conflict on trying to give up on hoping for a child.” The husbands had a deep-rooted longing for a child, which is genetically related to both the husband and wife despite experiencing repeated pregnancy losses. Moreover, they experienced conflicting thoughts despite telling themselves that they had to give up on having a child because of their wives’ age and the psychological and physical burden.

(After the third pregnancy loss) it was such a shock and we said to each other that we no longer wanted to have a child if the process was so painful and that we should discontinue the treatment. (Omitted) As I know that raising a child will be even harder, I know that I have to do everything possible to overcome this challenge to become a father – but it’s possible that I won’t be able to become a father (J)

**Difficulty faced in sexual relations**

This category has a single subcategory: “feelings of rejection over sexual relations prioritizing pregnancy.” The husbands understood that their wives had a strong desire to get pregnant and that they were impatient to become pregnant again following the pregnancy loss, and the husbands themselves wished to have a child. Moreover, they had a strong desire to fulfill their role as a husband. Therefore, the husbands felt a continuous sense of pressure to maintain good sexual relations with their wives on their day of ovulation, which only came once per month. This restricted lifestyle gradually caused a psychological burden and caused the husbands to have negative feelings regarding their sexual relations with their wives.

She would measure her basal body temperature and then we would have sexual relations on the exact day of ovulation but due to the diversity of my work, there were just times when that wasn't possible and that would put her in a bad mood – she would become very moody and I just felt mentally like I wanted that to stop (K)

**Distant but steady marital relationship**

This category comprises two subcategories: “wife not noticing consideration” and “steady marital relationship despite experiencing recurrent pregnancy loss.” When miscarriage/stillbirth was experienced, the husbands would suppress their emotions and act as if everything was normal to support their wives. However, such words and actions by the husband cause the wife to be suspicious, and believe that he was not sad about the pregnancy loss, resulting in distant marital relations. Furthermore, the husbands did not consider pregnancy loss to be a completely negative experience for him and his wife, based on
the husbands’ awareness that they could not completely understand their wives’ feelings as she suffered from repeated miscarriages or stillbirths. Moreover, the husbands felt that their relationship with their wives could be built up over time as they overcame this challenge as a couple.

This painful situation has made it possible for us to build up a relationship based on shared feelings that cannot be understood by anyone else (M)

**Hoping that family members will quietly offer support**

This category comprises four subcategories: “being unable to discuss subsequent pregnancies/miscarriages to family members after pregnancy loss,” “not expecting any particular support from family members,” “being aided by family support in times of need,” and “hoping for the family to quietly offer support.” The husbands had stopped talking to their family about pregnancies and miscarriages/stillbirths because of the experiences of their wives becoming pregnant and the subsequent miscarriage disappointing their parents, as well as family members making hurtful comments at painful times when miscarriages/stillbirths were experienced because of a lack of understanding. The husbands wanted a relationship in which even parents and siblings would not intervene in such a delicate problem faced by the couple and would only offer help when necessary.

Even kind words can at times be painful – they feel superficial. When I spoke to them and family members said that we should just give up, that actually hurt me. It would be better if they just watched warmly from a distance (M)

**Stance at work: not wanting people to mention recurrent pregnancy loss**

This category comprises three subcategories: “difficulty mentioning the recurrent pregnancy loss at work,” “trying to cope alone,” and “some consideration received at work.” The husbands felt that when they repeatedly had to suddenly take time off work to accompany their wives for surgery because of miscarriage or stillbirth, it was hard for them to speak about the negative fact of pregnancy loss. They took a stance of pregnancy loss being a private issue and not wanting to talk about it to anybody. Moreover, they did not want people to mention the RPL to them as they did not know of anyone in the same situation and wanted to deal with it alone.

As it is a delicate issue, you can’t talk about it to anyone – I didn’t have anyone to talk to about it because I didn’t know of anyone going through the same situation (F)

**Discussion**

**Experiences of husbands in couples suffering from RPL**
The husbands in couples suffering from RPL felt shocked upon learning of the first pregnancy loss and then experienced a lingering anxiety regarding the subsequent pregnancy losses. When they experienced repeated pregnancy loss, they were feeling less grief over the subsequent pregnancy losses and made an effort to accept the recurrent loss. When the husbands felt apologetic toward their wives, they tended to prioritize their requirement and act toward them with good intentions. After experiencing repeated pregnancy losses, the husbands had feelings of hopelessness. Despite hoping for a child and giving up on having a child and experiencing difficulties in their sexual relations, they maintained a distant but steady marital relationship. Moreover, the husbands were hoping that their family would quietly offer support. Moreover, they prepared for work and did not want people to mention about the RPL. We found that the experiences of husbands suffering from RPL were observed to be characterized by a strong urge to prioritize their wives’ needs and offer devoted support to their wives by actions toward wife with good intentions. The husbands felt sorry for their wives who blamed themselves for having the risk factor causing the condition and actually tried to treat their wives normally by suppressing their feelings of sadness and not bringing up the topic of pregnancy loss so as to prevent their wives from suffering from lowered self-esteem. The husbands did not ask their wives whether this was how they wanted to be treated. They also believed that prioritizing and supporting their wives was appropriate and natural for them as husbands and had no doubts about it at all. However, because this meant that their feelings of grief were not conveyed to their wives, it makes it difficult for the couple to share their feelings, resulting in differences arising between them over reactions to the pregnancy loss. Moreover, the good actions of the husbands toward their wives did not necessarily strengthen their relationship as a couple. When the husbands’ true feelings were not conveyed to their wives, distant emotions arose between them. The wives experiencing RPL want their husband to offer psychological support such as listening to what they say, attempting to understand their feelings, and creating time for enjoyment as a couple [7, 23]. Rather than a relationship in which husbands unilaterally offered support to their wife, it is best if husbands express their emotions and the couple talks about their feelings and listens to each other such that they can offer shared support to each other. This encourages the grieving process of the husband, thereby reducing the psychological burden. Furthermore, the husbands in couples suffering from RPL treated their wives based on the perception that she was feeling pain which the husband could not comprehend, and they attempted to offer support. In this context, the members of the couple continued to build up their relationship while striving to find balance for their feelings of grief. A study of men abroad reported similar results that men help women with the recognition that women responded more deeply than men [24]. Moreover, it has been demonstrated that numerous studies describe husbands requiring to control or put aside their sorrow to assume the role of supporting their wives [25]. In each couple’s relationship with each other, they continued to build relationships while balancing the feelings of grief. Moreover, the husbands felt apologetic toward their wives and experienced difficulties in their sexual relations. As they felt that their wives might suffer from another miscarriage/stillbirth, which could be physically and emotionally damaging for her, they experienced hesitation regarding sexual relations. This could be related to the fact that men suffering from RPL have less sexual contact [13] and increased anxiety and depressive tendencies put them at risk for erectile dysfunction [14]. Furthermore, the wives wanted to engage in sexual relations prioritizing pregnancy because they were impatient about the time limits set on
them by their own age and were worried about experiencing another pregnancy loss. The husbands suffering from RPL respected their wives’ desire for a child and felt a psychological pressure to successfully perform sexual intercourse on their wives’ fertile days. Although this was because both the husband and wife wanted a child and consider each other’s feelings, a couple’s sex life is a delicate topic and feelings of isolation may arise if the issue is not discussed taking each party’s feelings into consideration. Moreover, the husbands are in a deep relationship with their wives, although the marital relationship may become complicated due to the pregnancy loss. Furthermore, they attempted to support their wives, considering that their wives were their closest supporter [25]. Therefore, men’s grief appears to have a shorter duration than that of women [26].

**Features of the husbands’ grief and need for psychological support**

The husbands felt a lingering anxiety during the pregnancies following the subsequent pregnancy losses, which is similar to women suffering from RPL who felt a strong anxiety when in the same situation [10]. In other words, the husbands, like their wives, were anxious about possible miscarriage or stillbirth and what would be the outcome of the next pregnancy after pregnancy loss. Moreover, the results of this study demonstrated that when husbands have frequent experiences of pregnancy loss, they became accustomed to losing their child to miscarriage or stillbirth. This may have been because they could not just give into their feelings of grief as their anxiety over the RPL could mean that they tried not to imagine their future child and were forced to think about how to support their wives if they were to suffer from another pregnancy loss. Many previously conducted quantitative studies have reported figures indicating that women suffer from greater psychological damage than men upon miscarriage or stillbirth [16, 18, 27]. However, the husbands continued to accept their wives’ grief and support them regarding the subsequent pregnancy losses. Because they repeatedly went through this process, the husbands still had to go to work and made a great effort to continue with their daily lives normally while dealing with anxiety. Furthermore, it needs to be understood that even husbands who do not express their emotions and who calmly support their wives suffer from a significant psychological burden. Because the relationship between the couple influences recovery from grief, medical processional should facilitate the husbands suffering from RPL in expressing their emotions to their wives [28]. The experience of not being able to have a child is the same for those suffering from infertility, in the sense that the husband does not get a stronger chance of actually having a child. However, husbands suffering from RPL lose their child after hearing its heartbeat and seeing it on ultrasound images. Moreover, they lose the fetus after they have developed an attachment to it, which is considered a factor that strongly influences the perspective of men regarding the pregnancy loss [25]. Moreover, the husbands suffering from RPL feel joy and anxiety over the pregnancies following the pregnancy loss. They go through an emotional roller coaster in which they start to imagine their future child and then suffer from repeated miscarriage or stillbirth, causing them to experience grief. They then experience a continuous sense of hopelessness in that they will not be able to have any children to carry on their genes; this is the root cause of their pain.
and causes a major psychological burden. The emotions of husbands suffering from RPL are a complex mixture of grief, anxiety, hopelessness, and pain. They are unable to share these emotions with their wives and are forced to feel these emotions alone as they are unable to talk about them with their friends, family, and workmates. Therefore, they tended to be distant from their family members and workmates. Furthermore, this indicates that they are in a very difficult situation in which they can easily be isolated because of having nobody to confide in. Nevertheless, men in infertile couples have not been prepared with a social system that allows them to receive the same mental support that women normally receive. This is true in both Japan and in other countries, and the lack of social awareness regarding men's mental health may complicate men's mental recovery [24, 25]. Medical processonals need to have a shared awareness of the fact that husbands and wives need psychological support [29, 30]. Situations wherein couples attend examinations or tests for fertility treatment should be considered an opportunity for the husbands to be informed that support is available for them in which they can express their emotions. Based on the demand for peer support spaces in which men suffering from RPL can express their emotions to other men going through the same situation [15], the feasibility of implementing such spaces in medical facilities needs to be investigated.

**Conclusion**

Recurrent miscarriages and/or stillbirths cause husbands in couples suffering from RPL to suppress a range of emotions while prioritizing and supporting their wives over themselves, thus making efforts to continue with their daily activities despite having a sense of hopelessness over the future and not ask for any support from those around them. Medical professionals need to be able to advocate for the husbands’ mental health in couples suffering from RPL to help them express their feelings to their wives. Furthermore, frameworks need to be established to maintain good marital relationships and psychologically support the husbands of such couples, as well as develop peer support networks.

**Limitations**

The limitations of this study included the fact that the husbands who attended a specialized RPL treatment facility, in which only a few are established in Japan, and who were cooperative during the study are possibly relatively good husbands. Furthermore, the requirements of the husbands suffering from RPL in couples not yet undergoing RPL treatment and the worries that resulted from differing opinions on wanting a child need to be investigated further.

**List Of Abbreviations**

RPL: Recurrent pregnancy loss

**Declarations**

Ethics approval and consent to participate
This study was approved by the IRB of the affiliated institution, Kawasaki University of Medical Welfare (15-031, Aug. 5, 2015), and the implementing facility, Graduate School of Health Sciences, Okayama University. (T15-03, Jul. 24, 2015).

Both members in the couples suffering from RPL were briefed on the nature of the study through verbal and written explanations, and their consent forms were obtained upon request.

**Consent for publication**

Not applicable.

**Availability of data and materials**

The datasets generated and/or analyzed during the current study are not publicly available due to the sensitive nature of the data containing patient information in Japanese, but they are available from the corresponding author on reasonable request. English version of the interview questionnaire is available in addition file 1.

**Competing interests**

There are no conflicts of interest to declare with regard to the content of this study.

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**Authors' contributions**

KH and MO conceived of and designed the study; KH and MN collected the data; KH and MO analyzed the data, discussed the findings and contributed to the interpretation of the data, and the refinement of the analysis. KH wrote initial drafts of the manuscript; MO and MN critically revised early drafts of the manuscript and contributed to its final development. All authors read and approved the final manuscript.
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References

1. Glossary of Obstetrics and Gynecology (The 4 Edition). Tokyo: Japan Society of Obstetrics and Gynecology; 2018. p. 314.

2. Sugiura-Ogasawara M, Suzuki S, Ozaki Y, Katano K, Suzumori N, Kitaori T. Frequency of recurrent spontaneous abortion and its influence on further marital relationship and illness: the Okazaki Cohort Study in Japan. J Obstet Gynaecol Res. 2013;39:126-31.

3. Kolte AM, Olsen LR, Mikkelsen EM, Christiansen OB, Nielsen HS. Depression and emotional stress is highly prevalent among women with recurrent pregnancy loss. Hum Reprod. 2015;30:777-82.

4. Musters AM, Taminiau-Bloem EF, van den Boogaard E, van der Veen F, Goddijn M. Supportive care for women with recurrent miscarriage: patients’ perspectives. Human Reprod. 2011;26:873-7.

5. Musters AM, Koot YE, van den Boogaard NM, Kaaijk E, Macklon NS, Goddijn M, et al. Supportive care for women with recurrent miscarriage: a survey to quantify women's preferences. Human Reprod. 2013;28:398-05.

6. Futakawa K. First trimester experiences of pregnant women that have suffered recurrent pregnancy loss: a qualitative study. J Tsuruma Health Sci. Soc. Kanazawa Uni. 2017;40:1-9.

7. Hada K, Kuse E, Nakatsuka M. Women with recurrent pregnancy loss: Their psychology during late pregnancy and the supportive behavior of their partners. Acta Medica Okayama. 2018;27:387-94.

8. Kataoka K, Tomiya Y, Sakamoto A, Kamada Y, Hiramatsu Y, Nakatsuka M. Altered autonomic nervous system activity in women with unexplained recurrent pregnancy loss. J Obstet Gynecol Res. 2015;41:912-8.
9. Nakano Y, Oshima M, Sugiura-Ogasawara M, Aoki K, Kitamura T, Fukukawa TA. Psychosocial predictors of successful delivery after unexplained recurrent spontaneous abortions: a cohort study. Acta Psychiatr Scand. 2004;109:440-6.

10. Nakano Y. Psychological distress of patients with recurrent miscarriage and their support: From simple psychological support to high intensity cognitive behavior therapy. JPN SOC Hosp. Psych. 2011;23:364-69.

11. Nakano Y, Akechi T, Furukawa TA, Sugiura-Ogawasara M. Cognitive behavior therapy for psychological distress in patient with recurrent miscarriage. Psychol Res Behav Manag. 2013;6:37-43.

12. Sugiura-Ogasawara M, Furukawa TA, Nakano Y, Hori S, Aoki K, Kitamura T. Depression as a potential causal factor in subsequent aborters. Human Reprod. 2002;17:2580-4.

13. Serrano F, Lima ML. Recurrent miscarriage: psychological and relational consequence for couples. Psychol. Psychother. 2006;79:585-94.

14. Zhang YX, Zhang XQ, Wang QR, Yuan YQ, Yang JG, Zhang XW, et al. Psychological burden, sexual satisfaction and erectile function in men whose partner experience recurrent pregnancy loss in China: a cross-sectional study. Reprod. Health. 2016;13:73.

15. Hada K, Ohira M, Nakatsuka M. Thoughts of husbands in couples with recurrent miscarriage on the support from medical staff and social support at the time of miscarriage and stillbirth. Kawasaki Med. Welfare J. 2019;29:63-74.

16. Maruyama T. Clinical Study of Stress and Mental Health of RPL Couples. 2010. http://fuiku.jp/report/data_2022/2022_15.pdf. Accessed 16 Jul 2020.

17. Kashiwagi K, Takahashi K. Men's psychology in Japan – Another Gender Issue. Tokyo: Yuhikaku; 2008. p. 24-35.

18. Kagami M, Maruyama T, Koizumi T, Miyazaki K, Nishikawa-Uchida S, Oda H, et al. Psychological adjustment and psychosocial stress among Japanese couples with a history of recurrent pregnancy loss. Human Reprod. 2012;27: 787-94.

19. Nakastuka M. Psychological support for recurrent pregnancy loss 6 – RPL husband stress and support. Enhancing Clinical Midwifery Care Skills 2014;6:84-7.

20. Sugiura M. Evidence-based treatment for recurrent pregnancy loss/habitual abortion. Tokyo: Kinpodo; 2017. p. 174-7.

21. Kita M, Yazu Y. Implementing qualitative research and substraction for evaluation. Tokyo: Igaku-Shoin; 2015. p. 27-49.

22. Kayama M. Qualitative research implementation notebook – Clues and points for the research process. Tokyo: Igaku-Shoin; 2007. p. 31-49.

23. Yamasaki A. Qualitative study of couples experiencing perinatal loss. Nurs. Res. 2011;44:198-210.

24. Campbell-Jackson L, Bezance J, and Horsch A. A renewed sense of purpose: Mothers’ and fathers’ experience of having a child following a recent stillbirth. BMC Pregnancy Childbirth. 2014;14:423.
25. Obst KL and Due C. Australian men’s experiences of support following pregnancy loss: A qualitative study. Midwifery. 2019;70:1-6.

26. Kong GWS, Chung TKH, Lai BPY, Lok IH. Gender comparison of psychological reaction after miscarriage: a 1-year longitudinal study. BJOG Int J Obstet Gynaecol. 2010;117:1211-9.

27. Aoki K, Furukawa T, Ogasawara M, Hori S, and Kitamura T. Psychosocial factors in recurrent miscarriages. Acta Obstet Gyn Scan. 1998;77:572-3.

28. Avelin P, Rådestad I, Säflund K, Wredling R, Erlandsson K. Parental grief and relationships after the loss of a stillborn baby. Midwifery. 2013;29:668-73.

29. Abboud LN and Liamputtong P. Pregnancy loss: What it means to women who miscarry and their partners. Soc Work Health Care. 2002;36:d37-62.

30. Khan RA, Drudy L, Sheehan J, Harrison RF, Geary M. Early pregnancy loss: How do men feel? Ir Med J. 2004;97:217-8.

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