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# Work-related choices of mothers of childhood cancer survivors: a qualitative study

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## Abstract

**Purpose**

This study aimed to explore the employment choices of mothers of childhood cancer survivors (CCSs) and associated factors.

**Methods**

Semi-structured interviews were conducted with 16 mothers of CCSs regarding their employment status from the onset of their child's cancer until the time of the survey. Transcripts were created from the interview data, and then inductive thematic analysis was performed.

**Results**

The employment choices made by mothers of CCSs who were working at the time of diagnosis included "continue working", "take a leave of absence", "extend parental leave", and "quit". The following four themes emerged as factors related to the mothers' employment choices at the time of diagnosis: thoughts on daily life during treatment, treatment environment, workplace support, and financial situation during treatment. The following six themes emerged as factors associated with the mothers' employment choices after discharge: mothers' attitudes toward working, the impact of working on their child, support for working, the child's health status, financial situation after complete treatment, and outpatient visits.

**Conclusion**

In addition to intention to work, several factors were found to be associated with a mother's decision regarding employment. In particular, immediately after diagnosis, the CCSs' situation changed rapidly, which made it difficult for mothers to make decisions while in a psychologically stable state. These findings suggest the need to support mothers of CCSs so that they can calmly assess their current situation, consider various factors, and make decisions based on what they value most in their own lives.


## Introduction

Childhood cancer often leads to changes in parental employment and financial difficulties for the entire family [1, 2]. Parents' socioeconomic status is associated with the long-term health and prognosis of children with cancer, as well as the quality of life of the entire family, including the child with cancer [3–5]. Therefore, it is necessary to assess and support the socioeconomic status—including the employment status—of parents of children with cancer continuously from the time of diagnosis through survivorship [6, 7].

The impact of childhood cancer on parental employment is evident immediately following diagnosis [1–8], and parents must reorganize their roles regarding housework, childcare, and work. Because mothers typically assume the primary role in caring for their child with cancer, they are more likely than fathers to opt for a break from work—including taking leave or quitting [8–11]. A Japanese study found that 27.5% of mothers who were employed at the time of diagnosis took extended leave, while 42.2% quit their jobs [12]. Even after the end of treatment, childhood cancer continues to have a long-term impact on mothers' employment: mothers of childhood cancer survivors (CCSs) are more likely to be unemployed than mothers in the general population [8]. It has been reported that the unemployment rate among mothers of CCSs is higher than that of fathers after the end of treatment, and that their income remained lower even 6 years after diagnosis [13]. Even after treatment ends, mothers continue to accompany their children to regular outpatient visits and remain on standby, never knowing when they might be called in from school [11, 14]. Although unemployed mothers express a desire to work, they often cannot because of the need to care for their CCS, or alternatively, opt for low-wage or part-time employment [2, 15].

It has also been reported that a diagnosis of hematologic malignancy, a diagnosis during early childhood, low educational attainment for the mother, and having multiple children are associated with interruptions in parental employment [1]. Furthermore, in our previous studies, an analysis of quantitative data identified the following factors as being associated with maternal employment status: willingness to work, continued employment during treatment, frequency of outpatient visits, level of support, and long-term uncertainty [12, 15, 16]. However, changes in maternal employment are diverse, and the factors associated with these changes may vary. Additionally, while a break in employment refers to both taking a leave of absence and quitting, the choice between these options influences the time to return to work after the end of treatment [17]. Given this background, the present study aimed to explore the following qualitatively: 1) the actual employment choices made by mothers of CCSs, and 2) the factors associated with these employment choices.

## Methods

# Participants

The study participants were recruited from respondents to a questionnaire survey targeting mothers of CCSs who provided consent to participate in an interview study. All participants were mothers of CCSs who had been diagnosed with a malignant tumor between the ages of 0 and 15 years, had been hospitalized for treatment, and had completed treatment for the malignant tumor. There were no restrictions on the number of years since the end of treatment or the age of the CCS. Mothers of CCSs who had experienced a recurrence, lost a child to childhood cancer, or could not speak Japanese were excluded. This study was conducted from October 2021 to May 2022.

## Data collection

Semi-structured interviews were conducted using an interview guide. Each participant was interviewed once, with each session lasting approximately 1 hour. The interviews were conducted via an online conferencing system. With the participants' consent, the interviews were recorded. As compensation, participants received a 1,000-yen gift card.

## Survey content (Table 1)

Table 1
Interview transcript

| Item | Question |
|---|---|
| Current employment status | "Could you tell me what kind of work you're currently doing?" |
| The course of the child's cancer from onset to the present and changes in the mother's employment status | "Could you tell me about the course of events from when your child was diagnosed with cancer until now?" |
| The mother's perception of child's health | "How would you describe your child's health condition?" |
| Support | "What helps you in your work right now?" |
| The meaning of work for the mother | "Could you tell me what working means to you?" |

The interview guide was developed based on prior studies [11, 12], and its content validity was reviewed by a group of experts. A pretest was conducted with one mother. Questions covered current employment status, the course of events from the child's cancer diagnosis to the present and changes in the mother's employment, the child's health, support systems, and the meaning of work for the mother.

## Analysis

We conducted an inductive analysis using Boyatzis's thematic analysis [17]. All verbatim transcripts were coded by HO. We divided the data into two periods—after the child's cancer diagnosis and after discharge—and extracted themes by comparing similarities and differences in content related to the mothers' employment choices and the reasons behind those choices. To ensure reliability, we performed a second round of coding 2 months after the first using unmarked verbatim transcripts. The six authors (HO, WI, YN, AS, MS, HI) compared the results of the first and second analyses, discussed any discrepancies, and resolved them through consensus.

## Results

Of the 21 individuals who applied to participate in the interview survey, interviews were conducted with 16 who responded to the scheduling confirmation (response rate: 76.2%).

# Demographic characteristics (Table 2)

Table 2
Characteristics of the mothers in this study (N = 16)

| Items | N (%) or M [IQR] |
|---|---|
| Mothers | |
| Age, years | 42 [38–45] |
| Education | |
| Completed university or graduate school | 7 (43.7) |
| Completed college | 5 (31.3) |
| Completed vocational or technical training | 3 (18.8) |
| Completed high school | 1 ( 6.2) |
| Employment status at the time of diagnosis | |
| Regular employment | 5 (31.3) |
| Non-regular employment | 4 (25.0) |
| Self-employment | 3 (18.7) |
| Homemaker | 4 (25.0) |
| Employment status during treatment | |
| Regular employment | 3 (18.7) |
| Non-regular employment | 2 (12.5) |
| Self-employment | 3 (18.7) |
| Homemaker | 8 (50.1) |
| Employment status at the time of the study | |
| Regular employment | 3 (18.7) |
| Non-regular employment | 8 (50.1) |
| Self-employment | 4 (25.0) |
| Homemaker | 1 ( 6.2) |
| Qualifications/licenses | |
| Have | 10 (62.5) |
| Do not have | 6 (37.5) |
| Place of residence | |
| Urban | 5 (31.3) |
| Rural | 11 (68.7) |
| Household income (yen) | |
| > 13,000,000 | 1 ( 6.2) |
| 10,000,000–13,000,000 | 5 (31.3) |
| 7,000,000–10,000,000 | 2 (12.5) |
| 5,000,000–7,000,000 | 1 ( 6.2) |
| 3,000,000–5,000,000 | 4 (25.0) |
| < 3,000,000 | 3 (18.8) |

M: median, IQR: interquartile range.

| Items | N (%) or M [IQR] |
|---|---|
| Childhood cancer survivors | |
| Age at diagnosis, years | 4 [2–5] |
| Age at survey, years | 9 [6–12] |
| Time since end of treatment, months | 46 [14–63] |
| Diagnosis | |
| Leukemia | 10 (62.4) |
| Lymphoma | 2 (12.4) |
| Retinoblastoma | 1 ( 6.3) |
| Wilms' tumor | 1 ( 6.3) |
| Rhabdomyosarcoma | 1 ( 6.3) |
| Ewing's sarcoma | 1 ( 6.3) |
| Late effects | |
| Yes | 6 (37.5) |
| No | 10 (62.5) |
| Medical care demands | |
| Yes | 2 (12.5) |
| No | 14 (87.5) |
| M: median, IQR: interquartile range. | |

The median age of the participants was 42 years, and 15 (93.7%) were employed. Among the employed mothers, seven (43.7%) worked from home. All 16 participants (100.0%) were married, and 14 had children other than the CCS. Among the CCSs, leukemia was the most common diagnosis, affecting 10 participants (62.5%).

## Factors related to mothers' employment choices at the time of their child's cancer diagnosis

An analysis of the qualitative data revealed that factors related to choices made at the time of their child's cancer diagnosis could be classified into the following four themes (Table 3).

Table 3
Mothers' employment choices upon their child's cancer diagnosis and the number of subthemes by choice

| Theme | Subtheme | Illustrative quote | Employment choices | | | |
|---|---|---|---|---|---|---|
| | | | Continue working | Take a leave of absence | Extend parental leave | Quit |
| Thoughts on daily life during treatment | The desire to be there for my child | "Right now, the most important thing I need to do is be there for my child" (Regular employment / Quit) | | 1 | 2 | 2 |
| | The desire to continue working | "I realized it wasn't good that whenever I had time to myself, I'd end up searching for things online and getting anxious. So, when I'm working, I can focus on that instead—and I don't have to dwell on the things I don't like. There were many moments when I thought it was better for me to keep working, so I figured I'd just stick with it rather than quit." (Non-regular employment / Continue working) | 2 | 2 | | |
| | The thought that it would be impossible to continue working | "Rather than wondering whether I wanted to keep working, I just thought it probably wouldn't be possible. So I thought I'd have to find someone to take over, as long as it didn't cause any trouble." (Non-regular employment / Continue working) | 1 | | | 1 |
| | The desire not to cause trouble at work | "I didn't want to cause any more trouble at work. So, when I talked it over with my husband, we realized that unless one of us gave it our all, it would be really difficult to make it work. Because I was pregnant at the time, I struggled with the decision a bit, but in the end, I decided to quit." (Regular employment / Quit) | | | | 1 |
| | A comparison of the impact on parents' work | "There was talk that he might take a leave of absence. But, after all, his line of work—he's a researcher at a manufacturing company—makes it really difficult to make sudden drastic changes across the board. I heard that if he were to leave, it would cause all sorts of problems. So we decided to go ahead and not do that." (Regular employment / Taking a leave of absence) | | 3 | | |
| Treatment environment | Requests from medical institutions for parents to accompany their children during hospitalization | "Well, at the hospital, they said a parent—or rather, a parent or someone in that role, like a grandparent—has to be there 24 hours a day, and they also told me absolutely not to leave the patient alone in the hospital room." (Non-regular employment / Taking a leave of absence) | | 2 | 1 | |
| | A hospital far from home | "The hospital that gave the diagnosis told me that they couldn't perform the surgery there, so I should go to Tokyo right away." (Self-employment / Taking a leave of absence) | | 2 | | |
| | Long-term hospitalization | "The doctors told me it would take 6 months to a year. It doesn't look like I'll be able to work much during that time." (Non-regular employment / Quit) | | 1 | 1 | 2 |
| Workplace support | Proposal from the workplace regarding continued employment while a child is undergoing treatment | "My coworkers told me, 'Once your child's treatment settles down, you'll definitely have time, so please don't quit. It's better for you to keep working,' so they helped me adjust my schedule, and I've been able to continue working." (Non-regular employment / Continue working) | 1 | | 1 | 2 |
| | Extendable parental leave system | "Well, when I explained the situation to my workplace, I was told I could take parental leave until my child turns three. It would be unpaid, though. So I talked it over with my | | | 2 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | supervisor and decided to take parental leave until my child turns three." (Regular employment / Extend parental leave) | | | | |
| | Colleagues who are understanding about my leave of absence | "There were several colleagues in my department who were rearing children, so it was kind of like, 'Oh, I get it, I get it.' Well, yes. Part of it is because of the nature of my job, but there's also the fact that even if it's not me personally, if push comes to shove, I can just pay someone else to handle it entirely. So, I'd say things like, 'Okay, I'll have someone else take care of that for now,' and because that was an option, I think that's probably why things went so smoothly." (Regular employment / Taking a leave of absence) | | 3 | | |
| Financial situation during treatment | Financial planning to minimize financial losses | "Well, because I'm not a company employee, if I take time off, my income will drop to zero." (Self-employment / Continue working) | 1 | 1 | | 2 |
| | Financial support from relatives | "Oh, and there might also be a financial aspect to it. My husband's mother was working, so she provided us with financial support." (Regular employment / Extend parental leave) | | 1 | 1 | |

### Thoughts on daily life during treatment

Treatment through hospitalization began immediately after the diagnosis, and the entire family's life was changed. The mother felt substantial anxiety about her child's life and physical and psychological suffering and wanted to stay by her child's side during treatment. While worried about her child's physical and psychological well-being, the mother—who wanted to continue working—chose either to keep working during the treatment or to take a leave of absence using available programs. Anticipating that her daily life would revolve around her child's health and treatment schedule, she considered quitting because of her belief that continuing to work would be impossible as well as her desire not to cause trouble for her workplace. In dual-income households, when comparing the extent to which the father's and mother's careers would be affected if one parent were to stay home to care for the child, she determined that the impact on the father's career would be greater and thus chose to take a leave of absence.

## Treatment environment

When treatment began with the child's hospitalization, the mother stayed with her infant child at the hospital, as requested by the hospital. If the family lived far from the treatment facility, it would be difficult to visit frequently from home, so the mother chose to stay with her child 24 hours a day during the hospitalization period. Because it was difficult for the mother to continue working while staying at the hospital 24 hours a day, she chose to take a leave of absence and extend her parental leave. Pediatric cancer treatment sometimes requires long-term hospitalization ranging from several months to a year. Believing it would be difficult to balance work with caring for her child with cancer during such a prolonged hospitalization, the mother chose to take a leave of absence, extend her parental leave, or quit her job.

## Workplace support

To support her child who was hospitalized for treatment, a mother explained her child's situation to her supervisor and the human resources department at work. One mother initially decided to quit, believing it would be impossible to continue working, but after her workplace offered a proposal regarding continuing employment while her child was undergoing treatment, she changed her mind and decided to keep working throughout the treatment period. Another mother, who was on parental leave at the time of the diagnosis, chose to extend her parental leave until the end of her child's treatment period, as her workplace had implemented a system allowing for the extension of parental leave. Mothers often feel they do not want to cause trouble for their workplace because they cannot continue working as they had before. In response to these feelings, the presence of colleagues who showed understanding toward their leave encouraged the mothers to choose to take time off.

## Financial situation during treatment

In dual-income households, the household budget was based on the combined income of both the father and mother. The mother recognized that it would be difficult to work as she had before the diagnosis while her child was hospitalized for treatment, and was considering a financial plan to minimize economic losses. She requested a leave of absence from her employer, but her supervisor

advised her to quit because of the financial burden of paying social insurance premiums during leave, and she chose to quit. There were also mothers who chose to quit after being advised by their employers to accept their severance pay to cover the expenses associated with their child's hospitalization. By contrast, some mothers chose to take a leave of absence, keeping open the possibility of returning to work so that the household finances could return to their pre-diagnosis state once treatment was complete. Financial support from relatives helped offset the loss of income resulting from the mother's interruption of work, and the mother decided to take a leave of absence to accompany her child during hospitalization.

## Factors related to mothers' employment choices after their child's discharge

The analysis of the qualitative data also revealed that factors related to choices made after discharge could be classified into the following six themes (Table 4).

Table 4
Mothers' employment choices following the completion of their children's cancer treatment and the number of subthemes by choice

| Theme | Subtheme | Illustrative quote | Employment choices | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Start working | Return to work | Change jobs | Reduce working hours | Extend working hours | Not working in desired job | Not working | Quit |
| Mothers' attitudes toward working | Desire to work | "After discharge, just as my child was starting first grade and things had settled down a bit, I just felt like doing something, so I guess that's when I started. I think about half a year had passed by then." (Self-employment / Return to work) | 1 | 2 | 1 | 1 | 1 | | | |
| | Feelings of guilt toward the desire to work | "There were times when I thought, 'God, please heal my child—I don't care what happens to my life anymore.' That's why I feel like it's wrong to even want to work or to put myself first." (Non-regular employment / Not working in the job I want) | | | | 2 | | 1 | 1 | |
| | Feelings of debt toward colleagues | "After all, I'd been away for several months, and my sister had even quit her job to come help me, so I felt a huge sense of guilt about that. I really felt a strong urge to make it up to somehow." (Homemaker / Start working) | 1 | | | | | 1 | | |
| The impact of working on children | Physical and emotional strain on children | "My child has been through a tough year, so I didn't want to just drop them off at nursery school and leave them crying—I wanted to stay with them until they felt better, you know? My company kept urging me to come back after I was discharged from the hospital, but my child came before work, so I kept | | 1 | | 1 | 1 | | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | visiting them just as often as a nursery school teacher would until my child was ready to go." (Non-regular employment / Not working) | | | | |
| | Prioritize spending time with your children | "My kids will only be here until they finish high school, so I think we'll probably only be living together until they turn 18. When I think about that, I don't really see the point in working so hard that I have to sacrifice time with my kids. That is, of course, assuming the situation allows it." (Non-regular employee / Not working) | | | 1 | 3 |
| | Explain the meaning of work | "I kind of want to show that working isn't something that has to be a struggle, but rather a way to be of help to others." (Non-regular employment / Change jobs) | | 1 | | |
| Support for working | Childcare support | "If my child could go to nursery school without any stress, I'd be willing to help even for just an hour or two, as a small favor." (Homemaker / Start working) | 4 | | | |
| | An offer to return to my former workplace | "Well, I explained that my child was still undergoing chemotherapy and that the schedule was irregular, so there might be times when I'd have to take time off—that I didn't know exactly when I'd have to go to the hospital. But they said, 'No, no, no—come on, come on, come on!' They were like, 'Just take time off when that happens,' and 'Come on, come on.' So I thought, 'Well, I guess I'll | 2 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | go,' and started working at my previous workplace." (Homemaker / Start working) | | | | | | |
| | Family support | "I'm pretty sure they'll be home—I mean, the kids are there, including my older son, so, yeah, I think they'll be fine even if I'm not there. Plus, I'd been spending the morning with my younger child (a childhood cancer survivor), so I figured it would be okay as long as my older son came home." (Self-employment / Extend working hours) | | 1 | | 1 | | |
| Child's health status | Good health status of child | "Once my child finished taking Leukerin and her white blood cell count had recovered—around the time I was told, 'Once it gets up to this level, you can worry less'—I started taking on occasional one-off jobs as a way to ease back into work." (Non-regular employment / Return to work) | | 2 | | | | 1 |
| | Anxiety about the health status of childhood cancer survivors | "I feel like I need to be in a position where I can rush over right away if something happens to my child, so while I want to work, I'm not sure how things will turn out." (Non-regular employment / Not working in desired job) | | | 2 | | 1 | |
| Financial situation after complete treatment | Securing education expenses | "I'm thinking of taking on extra work as much as I can, within my limits. You know, expenses just keep piling up. I've finally realized that this is what rearing kids is all about—just when you think they're becoming easier | 1 | | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | to care for, that's when the money starts flowing out." (Non-regular employment / Extend working hours) | | | | |
| | Income to support daily living | "I didn't have to worry about income, and, well, it wasn't a situation where I had to work just to get by. So I'm really grateful for that." (Homemaker / Not working) | 1 | | 1 | |
| Outpatient visits | Scheduling outpatient appointments and work | "The ophthalmologist's appointment was also on Wednesday. Oh, I used to go to that job on Wednesdays, and it almost always fell on a Wednesday. Even if I went to the hospital early in the morning, it would inevitably be past 2:00 p.m. By the time I got back from there, it was already past 3:00 p.m., so I just couldn't make it in time." (Self-employment / Quit) | | 1 | | 1 |
| | Frequency of outpatient appointments | "For about a month—or maybe a month or two—after my child was discharged from the hospital, the doctor asked us to come in every week, so we went in every week for blood tests. And, of course, I hadn't gone back to work yet, and my daughter wasn't attending nursery school either." (Homemaker / Not working) | | | 1 | |

# Mothers' attitudes toward working

After their children were discharged and began returning to school, nursery school, or kindergarten, the mothers felt a desire to work. However, some mothers were unable to stay motivated to work as they had before the diagnosis and therefore chose to reduce working hours. This desire to work was reflected in choices such as starting a new job, returning to work, changing jobs, or reducing or increasing working hours. However, they also harbored feelings of guilt regarding this desire, leading them to choose to work fewer hours or not pursue their desired job. Mothers who had been working before the diagnosis felt a sense of obligation toward their colleagues during their leave of absence and were thinking about returning to work as soon as possible. Furthermore, some mothers—whose children still

required medical care or had health concerns—decided not to pursue their desired jobs because they anticipated that their child's condition might suddenly worsen, forcing them to take time off, and they felt a sense of guilt toward their colleagues.

## Impact of working on children

Considering the physical and emotional strain that working could cause their child, mothers decided not to work for the time being and to keep her working hours short. However, once she was certain that her child could attend school or nursery school without physical or psychological strain, she began working and gradually increased her hours. If she hoped to prioritize spending time with her child over working even after the child returned to social life, she chose to reduce her working hours or not to work at all. Furthermore, believing that showing her child her own work experience would help convey the meaning of work, she chose to change jobs to one she felt more passionate about.

## Support for working

For mothers to work, they needed support such as nursery schools or kindergartens. When her child was hospitalized for pediatric cancer treatment, one mother was unable to enroll her other child in a nearby nursery school. She had to leave the child who could not be enrolled with a grandmother living far away, and as a result, was unable to see her child for 3 months. After her child was discharged, the mother chose to start working to ensure that her other child could continue attending nursery school, in preparation for the possibility of her CCS being hospitalized again. The mother who quit following her child's cancer diagnosis received an offer to return to her former workplace. Her supervisor understood her feelings and her child's situation, recognized that she might need to leave work early or take time off suddenly depending on her child's condition, and promised to support her. The offer from her former employer encouraged her to return to work. The family's understanding of the mother's decision to work, along with the shared division of household chores and childcare responsibilities among family members, provided support.

## Child's health status

After completing cancer treatment, if a child's immune function had not yet recovered, the mother would stay at home with the child to prevent infection. By contrast, some CCSs showed almost no decline in physical strength immediately after discharge and returned to nursery school right away. Mothers decided whether to return to work or remain at home based on their child's health status. When concerned about recurrence or a deterioration in their child's condition, mothers wanted to be able to rush to their child's side immediately if anything were to happen. Concerns about their child's health influenced mothers' employment choices; even when working, mothers choose to reduce their working hours or forgo their desired jobs.

## Financial situation after complete treatment

Because she had gone through the painful experience of her child's cancer diagnosis and treatment, the mother wanted to let her child do whatever he or she wished. The mother chose to start working and extend her work hours to cover the costs of her child's extracurricular activities and future education. When the family's daily living expenses could be covered solely by the father's income, the mother chose to prioritize spending time with her children over working and decided not to work at that time. However, once her children were stable enough—both physically and emotionally—to attend school regularly, she began working to supplement the household income.

## Outpatient visits

After discharge, CCSs have to attend regular outpatient appointments. Mothers who worked had to juggle these appointments with their jobs to accompany their children. Although the attending physician's outpatient clinic hours were fixed, it was difficult for mothers to take time off work consistently on specific days. Because unexpected test appointments could arise, one mother decided to quit prioritizing her child's outpatient visits and change jobs. Immediately after discharge, outpatient visits were scheduled every week. If the hospital was far from home, working was difficult when factoring in the commute time. Due to the high frequency of outpatient visits, the mother chose not to work.

### Discussion

This explorative study identified factors related to employment choices made by mothers of CCSs. The mothers in this study reported that their employment choices were influenced by not only their own intentions regarding work, but also multiple other factors. Furthermore, even when the same factors were reported, different choices were observed. These findings suggest that multiple factors are associated with mothers' employment choices, and that their employment decisions may be determined by the priority they assign to these factors. It has been reported that a child's cancer diagnosis alters parents' perspectives on balancing work and family life, with the child, family, and home life becoming the top priority [11]. Particularly immediately following diagnosis, the child's situation changes rapidly, requiring

parents to make decisions and respond to various challenges, such as treatment, adjustments to family life, and the redistribution of roles between spouses. It is difficult for mothers to assess their own situation and that of their family objectively while in a psychologically unstable state, and to consider their employment options from various perspectives. It is therefore necessary to support mothers so that they can calmly assess their current situation, consider various factors, reflect on what is most important to them in their lives, and make informed choices regarding their employment.

A mother's decision to work is associated with her preferences regarding life during her child's cancer treatment, the support available for work, her personal feelings about working, the health status of her CCS, the family's financial situation after treatment ends, and outpatient visits; these findings are consistent with previous research [2, 12]. A notable finding was the suggestion that accompanying a child during hospitalization may significantly influence a mother's decision regarding employment. Some mothers reported that the hospital had requested that a family member accompany their child during hospitalization. In a survey of parents accompanying hospitalized children, 75% of respondents reported that the hospital had requested their presence [18]; thus, such accompaniment is not necessarily based solely on the wishes of the child or the mother herself. In Japan, the "Children's Charter in Healthcare", published in 2022 [19], states that children have the right to be with parents or loved ones in the hospital and guarantees that a family member may stay with the child during hospitalization based on the wishes of the child and the family. For mothers, a child's cancer diagnosis evokes associations with severe symptoms and a threat to the child's life, leading to a desire to be by their side during sudden hospitalization. If both the child and the mother can flexibly choose not only whether to have a caregiver present, but also how that care is provided, the mother may be able to adjust her work arrangements and hours and consider continuing to work.

An unexpected finding was that the family's financial situation during treatment was associated with the mother's employment decisions. Previous studies have also reported that economic factors influence changes in employment status [11]. We had anticipated that mothers would either continue working to minimize financial loss or take a leave of absence while keeping the option to return to work open. However, some mothers chose to quit to become dependent on their husbands and avoid paying social insurance premiums. Others chose to quit with the intention of using their severance pay to cover the expenses associated with hospitalization. These choices appear to be driven by the structure of Japan's social security system. Insurance premium payments are waived during parental leave, but not during nursing care leave. Although recipients can receive a nursing care leave allowance equivalent to 67% of their wages, the maximum number of benefit days is 93, which is insufficient to cover the entire duration of a child's hospitalization for cancer—typically lasting from 6 months to a year. Consequently, by becoming dependent on their working husbands, these mothers were able to reduce expenses related to insurance premium payments. Furthermore, in Japan, there is a custom of receiving a lump-sum payment upon retirement, separate from the pension. While treatment costs for childhood cancer are partially alleviated by subsidies covering a portion of out-of-pocket medical expenses, indirect expenses such as transportation, food, and lodging costs increase [1]. Consequently, it is believed that mothers may choose to receive a lump-sum retirement payment rather than continue working while caring for their child and receiving a reduced salary. Pediatric cancer causes economic toxicity through not only treatment costs, but also increased indirect expenses such as food costs, as well as a reduction in income and assets resulting from work interruptions and the depletion of savings [20]. Establishing financial support during a child's cancer treatment may help mothers maintain their jobs. If a mother wishes to take a leave during her child's cancer treatment, a system is needed that allows her to take time off for the entire duration of treatment while receiving income compensation.

# Limitations

Of the 16 participants in this study, 12 were employed prior to diagnosis and 15 at the time of the survey. Only five mothers had no working experience, so there may be other factors contributing to the choice not to work. Additionally, participants residing in rural areas accounted for approximately 70% of the sample. Depending on the region of residence, there may be differences in access to childcare support and employment opportunities. Therefore, future studies should include surveys targeting mothers who are not currently employed and incorporate regional characteristics as contextual factors in the analysis.

# Clinical implications

Because a mother's decision to work is influenced by multiple factors in addition to her own intentions, it is necessary to encourage her to confirm her financial situation and workplace support before deciding to take a leave of absence. Accompanying a child during hospitalization is a factor leading to a leave of absence; therefore, hospitals should carefully consider the necessity of such requests.

## Conclusion

The results of this study suggest that, in addition to a mother's own intentions regarding employment, multiple factors are associated with her decision to work. In particular, immediately following a diagnosis, the child's situation changes rapidly, making it difficult for mothers to assess their own circumstances and those of their family while in a psychologically stable state, to plan, and to make decisions regarding their employment. Therefore, it is necessary to support mothers so that they can calmly assess their current situation, consider various factors, and make decisions by reflecting on what they value most in their lives.

## Declarations

# Competing interests

The authors have no relevant financial or non-financial interests to disclose.

# Ethics approval

This study was approved by the Ethics Committee of Tohoku University Graduate School of Medicine (No. 2021-1-340), the Institutional Research Board of Sapporo Hokuyu Hospital (No. 210303.04), the Institutional Review Board of the Graduate School of Medicine, Akita University (No. 2699), the Ethics Committee of the University of Tsukuba Hospital (R03-269), the Institutional Research Board of St. Luke's International Hospital (No. 21-R001), the Ethics Committee of Kanagawa Children's Medical Center (No. 2102-1), the Ethics Committee of Osaka Women's and Children's Hospital (1415), the Institutional Research Board of Ehime Prefectural Central Hospital (Ken. 03–60), and the Institutional Research Board of Kitakyushu City Hospital Organization (No. 202106012).

**Consent to participate**

Informed consent was obtained from all individual participants included in the study.

**Consent for publication**

Not applicable.

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# Author Contribution

Hiromi Okada, Wataru Irie, Akiko Sugahara, Yuko Nagoya, Masayo Saito, and Hitoshi Shiwaku conceived, designed and developed the methods for the study. Hiromi Okada coordinated the running of the study. Hiromi Okada, Wataru Irie, Akiko Sugahara, Yuko Nagoya, Masayo Saito, and Hitoshi Shiwaku contributed to the data analysis and drafted the manuscript. All authors contributed to the interpretation of the data analysis and critically revised the manuscript.

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## References


1. Roser K, Erdmann F, Michel G, Winther JF, Mader L (2019) The impact of childhood cancer on parents' socio-economic situation – a systematic review. Psychooncology 28:1207–1226. https://doi.org/10.1002/pon.5088
2. Kelada L, Wakefield CE, Vetsch J, Schofield D, Sansom-Daly UM, Hetherington K, O'Brien T, Cohn RJ, Anazodo A, Viney R, Zeppel MJB (2020) Financial toxicity of childhood cancer and changes to parents' employment after treatment completion. Pediatr Blood Cancer 67:e28345. https://doi.org/10.1002/pbc.28345
3. Erdmann F, Feychting M, Mogensen H, Schmiegelow K, Zeeb H (2019) Social inequalities along the childhood cancer continuum: an overview of evidence and a conceptual framework to identify underlying mechanisms and pathways. Front Public Health 7;84. https://doi.org/10.3389/fpubh.2019.00084
4. Mogensen H, Modig K, Tettamani G, Erdmann F, Heyman M, Feychting M (2018) Survival after childhood cancer–social inequalities in high-income countries. Front Oncol 8:485. https://doi.org/10.3389/fonc.2018.00485
5. Kim Y (2022) Factors associated with post-traumatic growth in Korean survivors of childhood cancer. Oncol Nurs Forum 49:71–80. https://doi.org/10.1188/22.onf.71-80
6. Wiener L, Kazak AE, Noll RB, Patenaude AF, Kupst MJ (2015) Standards for the psychosocial care of children with cancer and their families: an introduction to the special issue. Pediatr Blood Cancer 62: S419-S424. https://doi.org/10.1002/pbc.25675
7. Wiener L, Kupst MJ, Pelletier W, Kazak AE, Thompson AL (2020) Tools to guide the identification and implementation of care consistent with the psychosocial standards of care. Pediatr Blood Cancer 67(9):e28586. https://doi.org/10.1002/pbc.28586
8. Mader L, Rueegg CS, Vetsch J, Rischewski J, Ansari M, Kuehni CE, Michel G, Swiss Pediatric Oncology Group (2016) Employment situation of parents of long-term childhood cancer survivors. PLoS One 11(3):e0151966. https://doi.org/10.1371/journal.pone.0151966
9. Hiyoshi A, Montgomery S, Bottai M, Hovén EI (2018) Trajectories of income and social benefits for mothers and fathers of children with cancer: a national cohort study in Sweden. Cancer 124(7): 1492–1500. https://doi.org/10.1002/cncr.31123
10. Öhman M, Woodford J, von Essen L (2020) Socioeconomic consequences of parenting a child with cancer for fathers and mothers in Sweden: a population-based difference-in-difference study. Int J Cancer 148(10): 2535–2541. https://doi.org/10.1002/ijc.33444
11. Hjelmstedt SK, Forinder UM, Norberg AML, Hovén EI (2021) A balancing act: working and caring for a child with cancer. Journal of Child and Family Studies 30:1881–1894. https://doi.org/10.1007/s10826-021-01997-1
12. Okada H, Irie W, Sugahara A, Nagoya Y, Saito M, Sasahara Y, Yoshimoto Y, Iwasaki F, Inoue M, Sato M, Ozawa M, Kusuki S, Kamizono J, Ishida Y, Suzuki R, Nakajima-Yamaguchi R, Shiwaku H (2023) Factors associated with employment status among mothers of survivors of childhood cancer: a cross-sectional study. Support care cancer 31(3):168. https://doi.org/10.1007/s00520-023-07623-8
13. Norberg AL, Montgomery SM, Bottai M, Heyman M, Hovén EI (2017) Short-term and long-term effects of childhood cancer on income from employment and employment status: a national cohort study in Sweden. Cancer 123(7): 1238–1248. https://doi.org/10.1002/cncr.30436
14. Wakefield CE, McLoone JK, Evans NT, Ellis SJ, Cohn RJ (2014) It's more than dollars and cents: the impact of childhood cancer on parents' occupational and financial health. J Psychosoc Oncol 32(5): 602–21. https://doi.org/10.1080/07347332.2014.936653
15. Okada H, Maru M, Maeda R, Iwasaki F, Nagasawa M, Takahashi M (2023) The maternal employment status after the completion of their child's cancer treatment: a cross-sectional exploratory study. Nurs Open 10(3):1726–1734. https://doi.org/10.1002/nop2.1428
16. Okada H, Maru M, Maeda R, Iwasaki F, Nagasawa M, Takahashi M (2015) Impact of childhood cancer on maternal employment in Japan. Cancer Nurs 38(1):23–30. https://doi.org/10.1097/NCC.0000000000000123
17. Tsuchiya M (2016) Thematic analysis. Nakanishiya Shuppan, Kyoto, Japan.
18. Certified NPO Keep Smiling (2026) Tsukisoi Hakusho 2025 [White Paper on Hospital Accompaniment for Children 2025]. Certified NPO Keep Smiling. https://momsmile.jp/wp/wp-content/uploads/2026/07/hakusho.pdf. Accessed 14 July 2026
19. Japan Pediatric Society Committee for Improving Children's Living Environment (2022) Children's charter in healthcare. Japan Pediatric Society. https://www.jpeds.or.jp/society-activities/column/proposals-assertions/50143.html. Accessed 14 July 2026
20. Ohlsen TJD, Hale MR, Larson AJ, Jones SMW, Wilkinson F, Chow EJ, Ko LK, Desai AD (2024) Financial toxicity among pediatric oncology families during therapy and early survivorship: a qualitative analysis. Support Care Cancer 33(1):36. https://doi.org/10.1007/s00520-024-09093-y