



The process of becoming independent while balancing health management and social life in adolescent and young adult childhood cancer survivors

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Abstract

Aim: This study aimed to elucidate the process of how adolescent and young adult childhood cancer survivors (CCSs) become independent while balancing health management and social life with a view to providing long-term support.

Methods: Semi-structured interviews were conducted with 22 Japanese CCSs aged 16–25 years. The data were then qualitatively analyzed using the modified grounded theory approach.

Results: Seven “categories” and 35 ‘concepts’ were generated. The connections among these categories and concepts revealed the process of becoming independent while balancing health management and social life. The first phase in the process is “coordination within constraints,” which includes ‘consciousness and worries about deteriorating health’ and ‘adjustments to balance schoolwork and treatment.’ This phase changes into “challenges to being free and normal” and “release from constraints.” Psychological development then occurs as “gratitude toward surrounding people” and “sustenance from experiencing a rare illness.” However, CCSs also “face worries about the persistent effects of cancer,” including ‘awareness of the necessity to continue hospital visits even into adulthood.’ Through these experiences, CCSs reach the phase of “finding a way to live with oneself,” which integrates health management with social life.

Conclusions: These findings may help parents and health, education, and social-care professionals anticipate and share changes in CCSs’ physical condition, daily life, and psychosocial development. CCSs need support in terms of coordinating cancer therapy and school life, trying what they want to do, self-managing their own health condition, and forming their identity, including making sense of their illness experience.

Keywords

adolescent development, functional independence, self-management,
survivors of childhood cancer, transition to adult care

1 INTRODUCTION

The provision and support of health care for patients with childhood-onset chronic diseases (CCDs), including childhood cancer, during the transition to adulthood is an important issue, as pathologies and complications change with age and personality maturation (American Academy of Pediatrics, American Academy of Family Physicians, & American College of Physicians, 2002; 2011). Patients with CCDs tend to experience health and social difficulties such as complications and education, employment, and income issues, even after childhood (Baca, Barry, Vickrey, Caplan, & Berg, 2017; Jin, An, & Wang, 2017; Maslow, Haydon, McRee, Ford, & Halpern, 2011; Pinguart, 2018). Dealing with patients in transition is one of the many roles of nurses (Meleis, 2010). However, attitudes toward transitional care for adolescents and young adults (AYAs) with CCDs differ somewhat between pediatric and adult care professionals (Sparud-Lundin, Berghammer, Moons, & Bratt, 2017; Suzuki et al., 2020), and many Japanese adult unit nurses are unaware of transitional care (Suzuki et al.). In Japan, the two key issues regarding support for pediatric patients with CCDs during the transition to adulthood are support for patient autonomy/independence, including understanding the disease and medical decision-making, and the development of a medical system that includes adult medical departments and multidisciplinary collaboration (Ministry of Health, Labour and Welfare, 2017).

As survival rates for patients with childhood cancer have improved to about 80% (Allemani et al., 2018; Siegel, Miller, & Jemal, 2020), the number of childhood cancer survivors (CCSs) has been increasing every year. The number of CCSs in Japan is currently estimated to be more than 50,000 (Ishida, Higaki, Hayashi, Inoue, & Ozawa, 2016). Cancers in adolescents aged 15–19 years are often included in childhood cancer

protocols, treatment, and follow-up (Children Oncology Group, 2018). Many long-term survivors of childhood and adolescent cancer experience a wide range of late effects, including endocrinopathy, organ dysfunction, secondary neoplasms, and reproductive and neurocognitive problems (Landier, 2018; National Cancer Institute, 2022; Ozono et al., 2014; Tonorezos, et al., 2022). Some CCSs also experience psychological and mental health problems, such as posttraumatic stress or depression (Brinkman, Recklitis, Michel, Grootenhuis, & Klosky, 2018; Prasad, et al., 2015; Vuotto, et al., 2017). Therefore, because of the risk of late effects, long-term follow-up (LTFU) by various professionals and departments, including adult departments, based on the relevant guidelines for childhood cancer is needed (Children Oncology Group, 2018), accompanied by a shift in the focus of health care from the parents to the patient. However, AYA CCSs are not always adequately prepared for the transition to adult health care and thus need to develop their ability to self-manage their health, including seeing a doctor without their parents and understanding their treatment history and late effects based on their development (Frederick, Bober, Lexie, Tower, & Kenney, 2017; Klassen, et al., 2014; Syed, Klassen et al., 2016).

Numerous studies have pointed out that the psychosocial conditions of CCSs, including those associated with employment, financial aspect, and education, are influenced by cancer treatment and late effects (Brinkman, et al., 2018; Huang, et al., 2019; Ishida, Hayashi, Inoue, & Ozawa, 2014; Kunin-Batson et al., 2011), and the impacts are greater in AYA CCSs. On the other hand, some studies have reported positive psychological and social conditions among CCSs and the support provided for them (Jervaeus, Sandeberg, Johansson, & Wettergren, 2014; Phipps, et al., 2014; Tremolada, Bonichini, Basso, & Pillon, 2018). In addition, support from medical staff in terms of

independence is significantly involved in the evaluation of the quality of health care by CCSs (Siembida, Kadan-Lottick, Moss, & Bellizzi, 2018).

As described above, the state of the CCSs' independence or insufficiently independence such as self-management, employment, financial and living situation are reported. Multidisciplinary support is important for the independence of AYA CCSs with many developmental tasks while balancing their health management and social lives, and the contribution of nursing is necessary. However, what processes CCSs go through to become independent from their parents and balance their health management and social lives remain unclear.

Therefore, to obtain suggestions for long-term support, the present study aimed to elucidate the process of how CCSs in the transition from adolescence to adulthood become independent while balancing their health management and social lives. In this study, "independence" in CCSs refers to the process by which CCSs become the main managers of, and decision-makers for, their health and social lives, and balance them according to their own will, through the use of various resources. Although the definition of AYA is broad, ranging from 15-39 years of age (Li, et al, 2019; National Cancer Institute, 2020; Saloustros, et al, 2017), the present study focused on CCS in early AYA, focusing on the developmental process from adolescence.

2 METHODS

2.1 Study design

This study employed a qualitative research design, using a modified grounded theory approach (M-GTA) that was developed in Japan by Kinoshita in 1999 (Takeshita, 2019) based on the theoretical and content properties of Glaser and Strauss's (1967) grounded

theory approach (GTA). GTA, which includes M-GTA, is a qualitative research method for generating substantive theory grounded on data to explain and predict social interactions among people in specific situations (Glaser & Strauss, 1967; Takeshita, 2019). Among the various versions of GTA that have been developed, M-GTA is particularly suited for research in human services fields and the analysis of data through semi-structured interviews (Takeshita, 2019). Therefore, M-GTA was appropriate for use in this study for the following reasons: (i) the study aim was to generate a theory of changing processes in CCSs to utilize in long-term support; and (ii) the study focused on the progressive phenomena arising from social interactions between CCSs and their parents, friends, teachers, medical staff, peers, and others.

This study is reported in-line with the Standards for Reporting Qualitative Research (O'Brien, Harris, Beckman, Reed, and Cook, 2014).

2.2 Participant recruitment

The participants were recruited from two hospitals (a children's hospital and a university hospital) in Japan where treatment and follow-up for CCSs are conducted. The inclusion criteria for the CCSs were: (i) age 16–25 years; (ii) underwent cancer therapy for leukemia, malignant lymphoma, brain tumor, or osteosarcoma at age 10–19 years (these diseases are relatively frequent in teens and require LTFU); (iii) informed of their diagnosis; (iv) hospitalized at a pediatric ward or visiting a pediatric outpatient department; (v) experienced social life after cancer therapy and had not been hospitalized over the long term at the time of the interview; (vi) physical and mental condition suitable for participation in the study as assessed by a pediatrician or nurse; and (vii) able to participate in an interview in Japanese and provide informed consent.

The physicians and a nurse referred CCSs who met the inclusion criteria to the interviewer. Then, the interviewer informed CCSs and parents of CCSs less than 20 years of age about the study and associated ethical issues. In total, 22 CCSs and the parents of 12 CCSs agreed to participate in this study.

2.3 Data collection

The first author conducted face-to-face semi-structured interviews with all participants using an interview guide on survivors' perceptions and actions regarding their health management, social life, and independence. Information on the participants' characteristics was collected using a questionnaire. The guide and questionnaire were prepared after a discussion among researchers, medical staff, and a representative of a family support group involved in pediatric care.

The interview questions were as follows: (i) What do you think about your independence and independence in general?; (ii) How have you balanced your social life and health management after discharge?; (iii) What do you think or how do you feel about your disease and experience?; (iv) How did your parents support or talk with you about your health management, social life, their balance, your independence, and your feelings?; and (v) Who did you involve in your experience and how? The questionnaire also included items on age, gender, social status (education, employment, marital status, other), living situation, type of disease and therapy, age at diagnosis, and physical and life effects due to illness or treatment.

Each participant was interviewed once or twice. The interviews ranged from 54 to 112 minutes (mean: 84.5 minutes) in length per participant. All data were collected from June 2016 to March 2018. The interviews (in Japanese) were recorded using a digital

voice recorder and then transcribed verbatim.

2.4 Data analysis

We analyzed the data using M-GTA (Takeshita, 2019). In contrast to other versions of GTA, M-GTA has clear analysis procedures and uses analytical worksheets to visualize the researcher's thoughts during the analysis process. M-GTA sets the analytical theme and focus to generate applicable theory within the limited range (Takeshita, 2019). In addition, it uses coding without subdividing data to reflect human perceptions and behaviors accompanied by its factors and conditions in context.

The analysis procedure was as follows: (i) the analytical theme was set as the process in which CCSs become the main managers of, and decision-makers for, their own health and social lives and balance them according to their own will, and focus persons were set as CCSs who underwent cancer therapy at age 10–19 years; (ii) data from transcripts focusing on the analytical theme and after initial discharge were carefully selected; (iii) concepts were generated from the interpreted data with descriptive definitions; (iv) comparative analysis was repeated to examine similar or counterexamples; (v) relationships between concepts were examined and categories were generated; and (vi) a schematized diagram of the relationships among these concepts and categories was developed.

To ensure the credibility and trustworthiness of the data analysis, the principal author analyzed the data under constant discussion with the other authors and nursing researchers. In addition, various researchers in the M-GTA Study Group provided advice regarding the analysis process. Two mothers whose children had cancer (one of whom was a participant in this study) also commented on the validity of the results. Theoretical

saturation was determined by verifying that there was no new interpretability regarding the analytical themes and no omissions in the category relationships (Takeshita, 2019).

2.5 Ethical considerations

This study was approved by the ethics committee of two universities (Hamamatsu University School of Medicine, approval No.15-116, Seirei Christopher University, E16-042) and one hospital (Shizuoka Children's Hospital, The authors informed each participant, both verbally and in writing, about the purpose of the study, disclosed that the interviews would be conducted in a private room without their parents, and ensured the anonymity and confidentiality of the data. The participants were also told that their participation was voluntary and that they could refuse or withdraw at any time without penalty. Written consent was obtained from all participants. When participants were less than 20 years of age, we explained the same matters to their parents and received written consent from them.

3 RESULTS

3.1 Participants' characteristics

Table 1 shows the characteristics of the 22 participants. Twelve were in their teens and 10 were in their 20s. Fifteen were students and three were employees. Thirteen had been diagnosed with leukemia. The treatment periods for nine CCSs extended into their high school years.

3.2 Storyline

Qualitative analyses revealed seven categories and 35 concepts. The relationships

among these categories and concepts are shown in Figure 1 as the process of CCSs transitioning from adolescence to adulthood becoming independent while balancing their health management and social life.

The first phase in the process is “coordination within constraints” (category 1). This phase changes into “challenges to being free and normal” (category 2) and “release from constraints” (category 3). Next, psychological development occurs because of “gratitude toward surrounding people” (category 4) and “sustenance from experiencing a rare illness” (category 5). However, CCSs also “face worries about the persistent effects of cancer” (category 6). Through these experiences, CCSs reach the phase of “finding a way to live with oneself” (category 7), which integrates health management with social life.

3.3 Categories and concepts

Tables 2–6 show summaries of the seven categories and 35 concepts, complete with definitions of each concept and supporting quotations.

Category 1. Coordination within constraints

CCSs spent their life at school and home after discharge with various types of coordination considering the physical and mental effects of their cancer treatment. Category 1 consisted of eight concepts, as shown in Table 2.

Consciousness and worries about deteriorating health was the concept of origin in category 1. CCSs were concerned about ongoing cancer therapy and complications aggravating their symptoms, even after discharge. Therefore, CCSs were *aware of parents’ concerns and protective attitude* and tended to *refrain from activities*. They then made effort to *gain the cooperation of teachers and friends by explaining the*

disease carefully to teachers either on their own or through their parents, and to friends either on their own or through their teachers. They made *adjustments to balance schoolwork and treatment* among medical and educational professions with help from their parents. These adjustments included choosing a new school for higher education, a schedule for treatment and hospital visits, days to attend school, and a scope of activities. They also practiced *management of their physical condition in daily habits*, as shown in Table 2. *Worries about changes in appearance* had a great influence on their school life after discharge. In some CCSs, the mental effects of changes in appearance lasted for a long period after cancer therapy (e.g., 5–10 years). Because CCSs were unconvinced of their changes or demonstrated *refusal to be regarded as special*, some made efforts to *conceal their disease* and appearance, whereas others tried to *gain the cooperation of teachers and friends by explaining the disease carefully*.

While coordination within constraints involving various situations, CCSs maintained a *desire to be released from constraints*.

Category 2. Challenges to being free and normal

CCSs gave maximal or even too much effort in the same activities as everyone else or challenged themselves regarding what they wanted to do, even in the process of recovering from a deteriorated physical condition or if facing opposition from their parents. As factors that promoted these behaviors, three concepts were extracted: (i) *desire to be released from constraints*; (ii) *refusal to be regarded as special*; and (iii) *feeling negative about spoiling oneself because of disease*. However, when they had consciousness of and worries about aggravated symptoms, they refrained from activities again. CCSs felt *satisfaction in challenges* and had a sense of accomplishment and joy. They did not regret their efforts even if their physical condition deteriorated.

Category 3. Release from constraints

In this phase, CCSs felt release from the constraints of their disease and treatment and led a daily life without being conscious of their disease. They reached this phase after “coordination within constrains” (category 1) or “challenges to being free and normal” (category 2).

Category 3 consisted of four concepts, as shown in Table 3. The core concept was *experiencing a normal recovery of physical condition and school life*. It took several months to a year after discharge until CCSs regained their strength and physical condition and no longer required restrictions or adjustments in their lives. CCSs built *friendships without being conscious of the disease* and felt relieved to be able to live at their own pace, as people around them did not focus on their illness. These experiences promoted *consciousness of the disease fading*. In addition, some CCSs did not feel the need to participate in regular medical examinations or physical condition management behaviors in daily life. As CCSs recovered their physical condition, they also gained *awareness of encouragement from parents for what they wanted to do*.

Category 4. Gratitude toward surrounding people

CCSs were grateful to those surrounding them who had lent support to cope with their illness and coordinate within constraints, even though they had a desire to be released from their constraints. They felt relief and affection because of their parents’ support. They also had trust and appreciation for kind health-care professionals.

Category 5. Sustenance from experiencing a rare illness

CCSs positively viewed the rare illness experience of childhood cancer as valuable and meaningful. They reached this phase after “release from constraints” (category 3) and under the influence of “gratitude toward surrounding people” (category 4). This phase

interacted with “face worries about the persistent effects of cancer” (category 6) and influenced “finding a way to live with oneself” (category 7). This category was not applicable to two participants who had brain tumors accompanied by cognitive problems and two who had a history of recurrence since high school. The social life situations of these CCSs tended to be unstable at the time of the interview.

This category consisted of four concepts, as shown in Table 4. CCSs felt *gratitude toward a normal life and being alive* after more than a year since the end of treatment. They also recognized *finding meaning in meeting others through experiencing illness* and long-term or repeated hospitalization. CCSs tended to *view professionals as role models* for thinking about their potential future occupations, which was promoted by *finding meaning in meeting others* and influenced the concept of *selecting a life path based on experiencing an illness*.

Category 6. Face worries about the persistent effects of cancer

CCSs recognized persistent physical and mental symptoms associated with treatment and new worries that appeared with development, even after the end of treatment. They were also aware of coping strategies such as continuing medical visits, obtaining information, and consulting with others around them. CCSs faced these situations through consciousness and worries about deteriorating health in category 1. This category was positioned as opposite that of “release from constraints”.

This category included six concepts, as shown in Table 5. *Worries about fertility and risk to children* were expressed by participants in their 20s. They also understood that *awareness of the necessity to continue hospital visits even into adulthood* was associated with late effects, while participants in their teens stated that this was simply associated with recurrence risk. For some CCSs, reflecting on their illness experiences or learning

to become a health-care professional promoted the acquisition of information and a better understanding of their illness. The concept of a *passive attitude toward obtaining information about the disease and attending health-care visits by oneself* was found among participants with characteristics such as early childhood onset and within 2 years after diagnosis. This concept had the opposite meaning to two concepts: (i) *obtaining information willingly and understanding the disease better*; and (ii) *willing to attend hospital visits by oneself*. Worries about work were influenced by deteriorating health due to complications related to cancer treatment.

Category 7. Finding a way to live with oneself

This category was the end point of the process in the present study. CCSs were practicing and preparing for their future lives, including attending the hospital by themselves and managing their living behavior and finances. CCSs reached this phase through the following changes and influences in both social life and health management: (i) “release from constrains” (category 3); (ii) *selecting a life path based on experiencing an illness*; and (iii) *awareness of the necessity to continue hospital visits even into adulthood*. However, this category was not applicable to three participants who were 16 years old at the time of the interviews.

This category included five concepts, as shown in Table 6. *Willing to attend hospital visits by oneself* means that CCSs were willing to attend or actually attended hospital visits without an accompanying parent, share information with medical staff, and manage the information by themselves. *Self-supporting behaviors of daily living* were related to the recognition of hospital visits and earning a living, and were promoted by living alone, apart from their parents. CCSs were *willing to earn a living on one's own* and manage their finances. This concept interacted with *self-determination of one's life*

path and attending the hospital by themselves with an awareness of medical expenses and payments. CCSs were also thinking and *preparing to explain the disease to others* in the future.

4 DISCUSSION

4.1 Overview of the process of becoming independent among CCSs

In the process of becoming independent while balancing health management and social life among CCSs, we identified the following four characteristics when focusing on their will. First, in the phase of coordinating within constraints, health management and social life were inevitably integrated among CCSs, and conflicts were seen in which their original intentions could not be prioritized. Second, in the phase of being challenged via the acquisition of normalcy and freedom and released from constraints, the weight of a social life and behaviors based on their own will were expanding. Third, even with the expansion of CCSs' social life, there was a phase of facing persistent worries related to cancer and its future impact, and their health-care attitude was both proactive and reactive. Fourth, in the phase of finding a way to live with oneself based on one's own illness experience, health management and social life among CCSs were integrated by their own will.

Some elements of the process, such as worries related to the long-term effects of cancer after treatment (Brinkman et al., 2013; Ishida, Higaki et al., 2016; Michel, Brinkman, Wakefield, & Grootenhuis, 2020) and growing stronger from their illness experience (Husson et al., 2017; Jervaeus et al., 2014), have been identified in previous studies. The present study was unique in that it demonstrated each element as a sequential process, positioning the expansion of CCSs' autonomy and social lives within

the process from constraint to independence, and revealing a connection between health management and social life. In addition, to some extent, it represented the characteristics of adolescent perceptions and lives because it included CCSs aged 16 years and older who were in the midst of moving toward but had not yet necessarily reached independence.

4.2 Characteristics of coordinating within constraints

During and after treatment for childhood cancer, within the limitations of physical conditions and treatments, CCSs and involved others made adjustments to school life. While harboring a desire to be free from accompanying psychological, behavioral, and interpersonal difficulties (Takei et al., 2015), these difficulties suggest that CCSs were in conflict with a sense of not being their true selves. However, the CCSs' statements indicate that they did not simply suppress themselves or depend on others. They made choices and actions to hide their illness based on their own strong intentions. In addition, CCSs' explanations of their illnesses to friends and teachers, as well as their coordination to balance treatment and schoolwork, reflected their will.

4.3 What it means to be released from constraints

The challenges to normalcy and freedom and liberation from constraints identified in this study have two meanings with reference to the perspective of the trajectory of recovery from cancer (Dorsett, 1992): (i) to "recuperate" the normal daily life that existed before the disease; and (ii) to "renew" their life with new experiences as CCSs. Two types of challenging behaviors in CCSs were also found: (i) striving physically and mentally to return to normal and be the same as everyone else; and (ii) trying to do what

they want in search of freedom and self-fulfillment. It is noteworthy that both types of challenges were accompanied by a strong willingness to take action, by either persuading their parents who worried about their health, or not telling them at all. Even if CCSs' actions resulted in injury or a deterioration of their physical condition, they felt satisfaction and fulfillment but no regret, and this led to psychological stability. This was likely because of the strong intrinsic motivation for the action (Deci & Ryan, 2012) and because CCSs had previously experienced suffering resulting from not being able to do the same things as everyone else because of their illness.

Recovering from cancer and regaining “normal” physical fitness and school life released CCSs from their physical and life restrictions. At the same time, CCSs experienced psychological and interpersonal release and peace of mind in association with a variety of factors, including: (i) recovering all-day school–life activities; (ii) recovery of their appearance and hairstyle; (iii) being the same as everyone else and free from worry of being regarded as special; (iv) being themselves and acting as they are; (v) forgetting about their illness gradually through surrounding people; and (vi) experiencing decreased parental protective involvement and increased encouragement for what they wanted to do because of their recovery. Experiencing these interpersonal relationships without being conscious of their disease, and their frequent use of the terms “normal” and “same as everyone else” suggest that they felt they were normal comparison with those around them. This also suggests that CCSs experienced the early adolescent developmental tasks of acquiring a group identity and overcoming alienation, and became highly sensitive to social expectations (Newman & Newman, 2018). Furthermore, the term “normal” or “ordinary” has often been used and emphasized in previous studies on the lives and developmental trajectories of AYA CCSs (Belpame et

al., 2015; Lee et al., 2012; Shepherd & Woodgate, 2010). Education is a stepping stone to returning to a normal life (Elsberned, Pedersen, Boisen, Midtgaard, & Larsen, 2018). The above connotes that normal daily and social lives are important in regard to both recovery and development among CCSs who have experienced unusual and distressing childhood cancer treatments. Hence, the release from constraints identified in this study represents the being “normal” phase with an emphasis on their social life and distance from their illness, which seems to be a positive factor in moving toward independence.

4.4 Characteristics of facing persistent worries related to cancer

Even though CCSs led normal lives after cancer treatment, they worried about recurrence, infertility, and heredity, as in previous studies (Gorman Baily, Pierce, & Su, 2012; Nillson et al., 2014). Anxiety about cancer can be both a facilitator and a barrier to transitioning from pediatric to adult LTFU care (Rosenberg-Yunger et al., 2013). CCSs without late effects (Frederick et al., 2017; Rosenberg-Yunger et al., 2013) have been reported to be less ready for LTFU. In the present study, CCSs assumed that they would continue their checkups into adulthood based on their worries about recurrence and infertility and their doctor’s explanations, meaning that they are proactive about their long-term health care. On the other hand, our results suggest that CCSs with individual characteristics such as early childhood onset, a short period of time after diagnosis, and high anxiety may be passive in acquiring information about their disease. Age differences were also seen in regard to health care after cancer treatment, as CCSs in their teens with no complications tended not to assume late effects as a reason to continue seeing a doctor. CCSs in their 20s have been shown to worry about cancer-related infertility and genetic inheritance by their children, which may be related to the

early adulthood developmental issues of intimacy (Newman & Newman, 2018), male–female relationships, perceptions of future life such as marriage and childbearing, and visits to related medical departments such as gynecology departments.

4.5 What it means to find a way to live on one’s own based on the experience of illness

In this phase, CCSs use their illness experience as a source of sustenance to grow stronger and prepare for living on their own, which implies psychological independence through the quest for self identity and behavioral independence in terms of social life and health care. Many of the CCSs in this study worried that they were different from others immediately after returning to society, but in their subsequent social lives, could have the same age-appropriate experiences and independent behaviors and establish stable relationships with others. These types of experiences may have led to their quest for self identity, which positively captured the self with the rare illness experience of childhood cancer, which is different from everyone else. This view is similar to that reported in a previous study, where CCSs change from the “catching up with others” phase, in which they feel different from others, to the “discovering myself” phase, which includes recognizing themselves as special, and finally to the “planning my future” phase (An & Lee, 2019). The CCSs in present study also recognized positive aspects of their illness, such as gratitude for being alive, having a normal life, and support from surrounding people, and desired to make use of their experience, as previously reported (D’Agostino & Edelstein, 2013; Schreiner, et al., 2020). Creating positive meaning from a painful illness experience overlaps with posttraumatic growth (PTG), which is defined as positive psychological change resulting from difficult circumstances or trauma

(Tedeschi & Calhoun, 1996). Hence, it may also be the basis for forming the mental strength and self identity, which is also a sense of self-unity (Newman & Newman, 2018), observed in CCSs. In the process of integrating their illness experience with the significance of their existence and looking toward their future path and health, CCSs seem to be seeking a unique way of life that includes their illness experience combined with a confirmation of their own history and temporal continuity. However, despite the fact that older children with cancer who are unwell tend to have more PTG, in the long run, they tend to have poorer physical and mental health (Weinstein et al., 2018). In the present study, CCSs with recurrence after the age of 18 years or multiple late effects may have been over-adjusted, as they showed a high level of willingness to be independent in health care and life, even if they had an unstable psychosocial base.

In addition to the willingness to continue medical examinations, the fact that CCSs actually received them on their own was related to the degree of independence in many aspects. Specifically, these include independent living behavior, such as securing transportation, and the consciousness of making a living on their own, including covering their medical expenses. Some CCSs envisioned coordinating and understanding the workplace, it can be considered a phase involving the integrated acquisition of skills for independence in social life and health management.

4.6 Nursing implications

The results of the present study have revealed the long-term changes experienced by CCSs after discharge from the hospital, including their physical condition, social life, and psychological development, as well as the relationships among them, with a focus on the process toward independence. Nurses involved with CCSs are in a variety of

settings, including during inpatient treatment, outpatient treatment, LTFU, and treatment of complications, each of which may differ between departments or hospitals. The findings of the present study can provide various types of nurses with comprehensive and predictive perspectives on the long-term changes in CCSs, allowing them to more easily recognize phases of the process and when phases are missing. This would help nurses to understand each CCS's perceptions of their illness experience, current life, and future, and the connections among them. They also could share and anticipate changes in CCSs with other nurses, professionals and parents, and together they may be able to consider long-term support for CCSs. By doing so, nurses may be able to provide emotional support and advice to parents to support CCSs.

The following are suggestions for nursing with consideration of the four characteristics of the CCSs' process already described. First, to support the balancing of treatment and school life when returning to school after discharge or going on to higher education while continuing treatment, it is necessary to make adjustments in consideration of the desires and conflicts of CCSs in various constraints. Specially, it is important to share information among the hospital, school, and home regarding CCSs' physical condition, treatment, medical examination schedule, and school activities (Pini, Huge-Jones, & Gardner, 2011), and to provide opportunities for social interaction with consideration of the preferences and health condition of CCSs (Brauer et al, 2017; Christiansen et al., 2015). Second, after treatment for childhood cancer, it is important to respect the autonomy of CCSs and support the enhancement of their social life according to the recovery of physical condition. It is about accepting CCSs' desire to be free from the constraints of the disease and supporting the challenges of CCSs, the acquisition of group identity and positive interpersonal relationship construction. In

AYA CCSs, they feel more support and conflict in family relationships than in other relationships, which is associated with psychological health (Kay, Huth, Silver, & Sender, 2019). Medical professionals also need to focus on parents' supportive attitude towards what their children want to do, the availability of parent-child discussions, and parents' feelings about changes in their son's and daughter's life.

Third, it is necessary to watch over CCSs so that health care is not neglected and the pace of life is not harmful to their health (Lown, Phillips, Schwartz, Rosenberg, & Jones, 2015). To support LTFU considering complications and late effects, nurses involved with CCSs should facilitate awareness of the necessity to continue hospital visits even into adulthood. Differences in CCSs' awareness of personal health risks (Landier et al., 2015), preferences and involvement for decision-making (Weaver, et al., 2015), and self-management skills (Syed, Nathan, et al., 2016) based on age should also be taken into consideration. Regarding sexual and reproductive issues, doctors and nurses need to facilitate consultations with specialized clinical departments and support physical condition management and decision-making. At that time, they should assist CCSs in obtaining correct information and sharing their thoughts and feelings (Frederick, Revette, Michaud, & Bober, 2019; Tomioka, Maru, Kashimada, & Sakakibara, 2017), including risks and similarities with the general population (Sekiguchi, Miyoshi, Kikuchi, & Sago, 2018; van de Kooi et al., 2018). As for job insecurity associated with complications, collaboration with other professionals in supporting the stabilization of physical and mental health conditions, the acquisition of social skills tailored for functioning, and employment support through the use of social resources are required.

Finally, the results of this study indicated behavioral independence includes activities of daily living, medical examinations, explaining the disease to others, and economic

activities/employment. Nurses need to support CCSs in behaving independently in health care and social life and support parents to avoid becoming too overprotective. Specifically, health care professionals and parents should encourage CCSs to visit the hospital on their own and explain their illness when necessary, such as during hospital visits, in social relationship and at work. For health care of CCSs in adulthood and beyond, it is also necessary to advise CCSs to act on their own to obtain necessary resources for adult health care before transitioning to adult life and at every milestone such as school graduation from age 18 years to their early 20s.

While the late effects and risks experienced by CCSs can threaten their future psychosocial independence, the psychosocial strength and irreplaceable identity nurtured by overcoming distress could provide a sufficient basis to work toward their psychosocial independence. Therefore, collaborating with parents and multidisciplinary professionals to support CCSs by maximizing their strengths could lead to their independence.

4.7 Limitations

Most of the participants in present study were students who had not yet achieved financial independence through employment. More than half of the participants were under 20 years old, were minors under Japanese law at the time of the survey; hence, their parents were the formal decision makers in medical situations. Therefore, the scope of the results is limited to the period when CCSs are seeking their own way of life and moving toward independence. Furthermore, because we do not present a process from opposing concepts, this study's use as a reference for selection and decision-making at various milestones is limited. The process identified in this study involves a long-term

course, but is based on only one or two interviews in which participants reflected on their experiences. In addition, the participants in the present study did not include pediatric cancer survivors who completed cancer treatment before the age of 10 years. Moreover, we could only obtain the medical backgrounds from the participants themselves, and the participants in this study had only experienced four types of cancer. Therefore, the practical utilization of the results to reflect individuality is likely limited and thus needs to be verified in a future study.

5 CONCLUSIONS

This study explored how CCSs transitioning from adolescence to adulthood move toward independence through long-term changes. CCSs coordinated much of their life with surrounding help after discharge and faced physical and psychosocial constraints because of cancer treatment. Then, they challenged themselves to be free and normal and were released from constraints or faced worries about the ongoing effects of cancer. Finally, they changed into a state of acquiring and preparing their own way of life. The factors influencing these changes included psychological development, such as gaining mental sustenance from experiencing a rare illness and gratitude toward surrounding people. Our findings may help parents and health, education, and social care professionals anticipate and share changes among CCSs, thereby supporting them in developing independence and achieving a balance between health management and social life.

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CONFLICT OF INTERESTS

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Kyoko Miyagishima designed the study, collected and analyzed the data, interpreted the findings, and drafted and submitted the manuscript. Kazuko Ichie advised the research project, study design, data analysis, and revisions to the draft. Kimiyoshi Sakaguchi and Yuka Kato made important contributions to the data collection and contributed to the interpretation of the data and revisions to the draft. All authors read and approved the final manuscript.

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TABLE 1 Participant characteristics (n=22)

Variable	n (%) or mean \pm standard deviation
Gender	
Male	9 (40.9)
Female	13 (59.1)
Age at interview (years)	19.6 \pm 2.7
16–17	6 (27.3)
18–19	6 (27.3)
20–25	10 (45.5)
Occupation	
High school student	8 (36.4)
(third year=5;second=0;third year=3)	
University or college student	7 (31.8)
Full-time job	3 (13.6)
Other	4 (18.2)
Married	
No	20 (90.9)
Yes	2 (9.1)
With children	
No	21 (95.5)
Yes	1 (4.5)
Type of cancer	
Leukemia	13 (59.1)
Lymphoma	3 (13.6)
Brain tumor	4 (18.2)
Osteosarcoma	2 (9.1)
Recurrence	
No	18 (81.8)
Yes	4 (18.2)
Type of treatment	
Chemotherapy	22 (100.0)
Surgery	7 (31.8)
Radiation therapy	6 (27.3)
Bone marrow transplant	2 (9.1)
Age at diagnosis or recurrence (years)	12.5 \pm 2.3
School age at the end of cancer treatment	
Elementary school student	5 (22.7)
Junior school student	8 (36.4)
High school student	7 (31.8)
After graduation from high school	2 (9.1)
Post-treatment period (years)	4.8 \pm 3.8
Any late effects	
No	13 (59.1)
Yes	9 (40.9)
Type of late effects (for "yes" to the preceding question; multiple responses possible)	
Endocrine dysfunction (growth hormone deficiency, gonadal dysfunction)	4 (18.2)
Renal dysfunction	3 (13.6)
Neurocognitive problems	2 (9.1)
Problems in the extremities	2 (9.1)
Audiovisual problems	2 (9.1)
Hair loss that does not improve after treatment	2 (9.1)
Cardiovascular problems	1 (4.5)
Depression	1 (4.5)
Type of hospital participants mainly attend at interview	
Pediatrics at a university hospital	13 (59.1)
Children's hospital	4 (18.2)
Adult care department	4 (18.2)
None	1 (4.5)

TABLE 2 Summary of category (1st) and concepts

Category	Concept	Definition of each concept and supporting quotations
1. Coordination within constraints	Consciousness and worries about deteriorating health	Having consciousness and worries about the aggravation of symptoms due to ongoing cancer therapy and complications, even after discharge and resuming school activities. <i>I had few platelets, so when I was injured and bleeding, it was hard to stop and I often had nosebleeds. (Participant I)</i> <i>As my doctor told me in advance, radiation therapy causes a weaker memory than before treatment. I quickly forget the contents of my school lessons. (Participant T)</i>
	Aware of parents' concerns and protective attitude	CCSs' awareness that their parents worry severely about their physical condition and treat them with a protective attitude such as recommending discreet and safe behaviors or healthy foods. <i>There is gap in illness recognition with parents who connect everything with disease. (Participant L)</i> <i>I think my parents have been worried for a long time and they are overprotective. That's why I started taking supplements. Also, my parents were worried about what time I came home until I became a college student. (Participant J)</i>
	Refrain from activities	Inhibiting activities or behaving carefully because CCSs worry that their physical condition and consequences will worsen after their actions. <i>I didn't participate in any physical education (P.E.) classes while the central venous catheter was being inserted because I couldn't get out of it by playing sports. (Participant F)</i> <i>I was careful in my school life so that I wouldn't fall and the shunt wouldn't collapse. In my P.E. class, I talked to my teacher and had a different menu than everyone else. I didn't play ball games very much. (Participant M)</i>
	Gain the cooperation of teachers and friends by explaining the disease carefully	To get cooperation at school, CCSs explain their disease, physical condition, different behaviors from everybody, and changes in appearance, and suggest how they want to be involved with everyone. <i>Other children often see me leaving school early or absent from P.E. classes, so I'm relieved to talk to my close friends about my illness experience and let them understand why I left school early or missed P.E. (Participant K)</i> <i>I talked with nurses, doctors, and schoolteachers about how to explain my illness to students. The schoolteacher explained my illness to all the students in the grade and told them not to spread rumors about my hair loss due to the side effects of treatment. (Participant D)</i>
	Adjustments to balance schoolwork and treatment	Adjusting the balance between CCSs' schoolwork and treatment with parents' help among medical and educational professions. Their adjustments include choosing a new school to attend, a schedule for treatment and hospital visits, days to attend school, and the scope of activities. <i>To attend school on weekdays, I consulted with my doctor and adjusted the dosage in consideration of side effects. (Participant O)</i> <i>I entered a high school that gives special consideration for absences so that I didn't have to repeat the year because of medical treatment. (Participant H)</i>
	Management of their physical condition in daily habits	Taking action proactively with awareness, understanding, and motivation to prevent and improve my physical condition without inhibiting other activities because CCSs have consciousness and concerns about aggravating symptoms. <i>I reduce my salt intake when eating out before a medical examination. (Participant G)</i> <i>I went to the swimming pool for rehabilitation on weekends. (Participant C)</i>
	Worries about changes in appearance	Being worried about changes in appearance such as hair loss, swelling of the face, and short stature due to cancer therapies. <i>When I saw my friends fixing their hair in front of the mirror, I had hair loss and thus no hair to fix, which made me very distressed. I hated being there, so I left. (Participant U)</i> <i>My face became round because of the side effects of prednisolone. I was disgusted when my friend told me about it. When I was in high school, I had anorexia nervosa. (Participant L)</i>
	Conceal disease	Avoiding disclosing CCSs' disease and its effects to others or concealing their appearance changes from the disease because of worries about the reactions of others and feeling unconvicted. <i>I asked my teacher not to disclose my disease because of anxiety of not being treated the same way as before. (Participant P)</i> <i>I didn't want to go to school because my appearance changed, so I didn't go much. (Participant F)</i>
	Refusal to be regarded as special	CCSs refuse to be regarded as special and feel anxiety about what other students think of survivors and their behaviors after getting cancer. <i>I don't want to be treated as special. I want to be in the same position as everyone else. I really hate that I don't have to do it because I have an illness. (Participant Q)</i>
	Desire to be released from constraints	CCSs' wishing strongly to be released from constraints such as hospitalization, doctor visits, glances from surrounding people who know about their disease, and overprotective parental attitudes. <i>I want to do it freely when the restraint of going to the hospital is removed. (Participant B)</i> <i>I have wanted to get a little more freedom from my very overprotective parents. I hope to live alone away from my parents. (Participant H)</i> <i>I desired to go on to school where no one knew I had a disease. (Participant P)</i>

TABLE 3 Summary of categories (2nd and 3rd) and concepts

Category	Concept	Definition of each concept and supporting quotations
2. Challenges to being free and normal	Working hard in the same activities as everyone else	Working with CCSs' utmost efforts or overdoing things in the same activities as everyone else at school while their physical and mental condition was not perfect because of their disease and treatment. <i>I have participated in a P.E. class with some difficulty, exercised more than the limit, and vomited at the end of class. (Participant I)</i> <i>It was so hot that my wig got wet and my consciousness was dull. I had a tough week in club activities, but I didn't want to compromise. I really wanted to do it like everyone else. (Participant Q)</i>
	Challenges to what they want to do	Attempting to do what CCSs want to do while striving for the action itself and the understanding of surrounding people. <i>I joined the current club because I really wanted to. When I entered, my parents objected because I was taking a remedy, but I pushed through with my own will. (Participant B)</i> <i>I want to do what I want. Since I was discharged from the hospital with an artificial joint, I travel far away about twice a year. As soon as I think about it, I make a plan and go suddenly. (Participant V)</i>
	Feeling negative about spoiling oneself because of disease	Hating to spoil themselves because of CCSs' disease and intending to do what they can with utmost effort. <i>I didn't want to use my illness as an excuse, so I studied very hard to go to the high school of my choice. (Participant L)</i> <i>I think the idea of being ill and unavoidable spoils me. I didn't want to make excuses for my illness. I want to do it if I think I can do it myself. (Participant Q)</i>
	Satisfaction in challenges	Feeling glad that CCSs completed challenging actions through motivation and effort and that they did the same as everyone else. <i>I exercised so much that surrounding people told me it was overkill, and I hurt my back. But I didn't regret it because I did what I wanted to do. (Participant B)</i> <i>When I was in junior high school, I couldn't take P.E. classes even once, so it was a lot of fun to be in high school and take P.E. classes with everyone, even though I had a huge difference in physical fitness from other students. (Participant L)</i>
3. Release from constraints	Experiencing a normal recovery of physical condition and school life	Feeling that CCSs' physical strength and school life recovered up to normal and the same level as other students from a lack of physical strength and poor health due to cancer therapy. <i>After a year or more, I was treated the same as a normal person without illness. Many years after treatment, I was physically as strong as a normal person and worked well. (Participant N)</i> <i>It was about a year after the end of treatment that the effects of the illness disappeared from my daily life. As my hair grew back little by little, I became mentally calm. It took me a little courage the day I took off my hat, but I was happy. (Participant U)</i>
	Friendships without being conscious of the disease	CCSs' building trusting relationships with diverse friends in social life without being conscious of their disease, and also feeling relieved to be able to live at their own pace. <i>Putting aside my illness, I still see my best friends from high school who are not sick. I think that meeting these people probably helped me grow a lot. Forgetting that I had illness, I am able to live normally now probably because I have a lot of time to interact with people without disease. (Participant G)</i> <i>Almost everyone was new friends after going to school, so I thought no one would talk about my old illness, and I was able to spend my time as I was. (Participant P)</i>
	Consciousness of the disease fading	CCSs' sensing living without consciousness of their disease and the need for regular medical examinations and physical condition management behaviors in daily life because years have passed after discharge and cancer treatment. <i>I have no intention to go to examinations because I live a normal life. I was referred to a nearby hospital to be examined once a year, but I have never been to the referred hospital. (Participant F)</i> <i>Maybe I want to forget about my illness now because I feel like I'm living the same way as other people. (Participant U)</i>
	Awareness of encouragement from parents for what they wanted to do	CCSs' awareness that parents give encouragement and approval for what they want to do. <i>My parents seem to want me to go to school properly because I'm sick and struggling. My parents tell me to go if I want to go to college. (Participant A)</i> <i>My parents let me do what I want to do. I decided on my own high school, college, and club activities. When I was a university student and wanted to live alone, my parents encouraged me to try to leave home once. (Participant J)</i>

TABLE 4 Summary of categories (4th and 5th) and concepts

Category	Concept	Definition of each concept and supporting quotations
4. Gratitude toward surrounding people	Relief thanks to support from parents	<p>Feeling relief and affection from parents thanks to support after having childhood cancer.</p> <p><i>I found out that my parents were really worried. My parents supported me so much that I thought I was loved by them. (Participant J)</i></p> <p><i>Having the illness brought me closer to my mother and I really understood the kindness of the people around me. Looking back, I realized that my mother was there at that time to help me to overcome my struggling with disease and I was so supported. (Participant I)</i></p>
	Trust in kind health-care professionals	<p>Feeling trust and appreciation that medical-related professionals involved in CCSs are kind, and trusting the advice from the staffs.</p> <p><i>She is a very good doctor. She gave me treatment that suits me, such as shifting the treatment so that I was able to attend school events. She was sometimes strict and told me to go to school when the number of days I attended was barely enough. (Participant O)</i></p> <p><i>I am very grateful that the nurse in charge thought about me very enthusiastically and suggested and did various things. (Participant C)</i></p> <p><i>The most supportive person was probably the child life specialist. She was always close to my feelings, consulting with me and playing with me, and I think she really supported me. (Participant U)</i></p>
5. Sustenance from experiencing a rare illness	Gratitude toward a normal life and being alive	<p>Appreciating being alive and having a normal life because CCSs are able to return to their home and school lives, which have been hampered by the life-threatening childhood cancer illness, and they know about the deaths of others from an illness.</p> <p><i>I feel very happy to live a normal life. I started to not care about what other people think because I am who I am in a good sense. (Participant U)</i></p> <p><i>I'm fine, so I thought I had to live up to my friends who died during the treatment. (Participant J)</i></p>
	Finding meaning in meeting others through illness experience	<p>Realizing that there are people and places CCSs meet because they have experienced the disease of childhood cancer with long-term or repeated hospitalizations and treatments, and recognizing the values.</p> <p><i>I made many friends through experiencing illness. (Participant K)</i></p> <p><i>Illness is good experience for me because I met medical professionals in the hospital and I aspire to be a nurse. (Participant O)</i></p>
	View professionals as role models	<p>Positive images of people in health and welfare occupations who are involved with CCSs who are role models for thinking about what kind of profession they want to pursue in the future.</p> <p><i>The trigger for my aspiration to be a nurse was my first hospitalization due to this illness. When I was very anxious because I had no parents at the hospital, the nurse called out to me or washed my feet gently. (Participant P)</i></p> <p><i>My future goal is to become a physiotherapist. I had that goal in the wake of hospitalization. It was good that the physiotherapist who was involved during hospitalization was kind and easy to talk to. I like exercise so I want to teach it to various people. (Participant S)</i></p> <p><i>The childcare staff in the ward gave me energy by playing, and I was able to leave the hospital room and start moving. I also hope to become a nursery teacher and encourage the children who are working hard at the hospital. (Participant Q)</i></p>
	Selecting a life path based on experiencing an illness	<p>Working or selecting a life path with the desire to utilize the illness experience of childhood cancer.</p> <p><i>I can think of the patient's feelings from my experience with my own illness. That's why I want to be a nurse and help patients. I also feel that the illness experience is a stain for me, so I want to change it to another form. (Participant D)</i></p> <p><i>I like to eat and I felt that the meal in the hospital was not delicious, so when I did not have a tasty meal while I was in the hospital, I thought it should be improved. That's why I want to get a nutrition-related job at a hospital. (Participant E)</i></p>

TABLE 5 Summary of category (6th) and concepts

Category	Concept	Definition of each concept and supporting quotations
6. Face worries about the persistent effects of cancer	Worries over recurrence that does not dissipate	Ongoing worries about recurrence regardless of how many years have passed since the end of cancer treatment. <i>When I have a very high fever, I am worried that it may recur because I had the same symptoms as when leukemia started. I don't have anemia, so I think it's okay, but I think I'm at higher risk than others. (Participant J)</i> <i>I've always been worried about a recurrence when blood is collected at a staff checkup once a year. So I don't want to go to the hospital very often. (Participant F)</i>
	Worries about fertility and risk to children	Worrying about future fertility and the impact on children of CCSs who receive treatment for childhood cancer. <i>I am worried about the risk to my child and recurrence during pregnancy and in childbirth. (Participant U)</i> <i>I hope to talk with my partner about considering cardiorespiratory depression due to the late effects of chemotherapy and my family history of cancer regarding whether we want to have a child. (Participant V)</i> <i>I have had radiation therapy and I am concerned about the function of my reproductive system, so I am seeing a urologist at my own request. (Participant M)</i>
	Obtaining information willingly and understanding the disease better	Understanding childhood cancer and treatment better than before by taking actions such as investigating and asking medical professionals. <i>By studying at university, I deepened my understanding and looked back on the medicine I had been taking and the purpose of the radiation therapy I had received. (Participant R)</i> <i>When I was in junior high school, I looked up the disease I had experienced. I realized that my condition was better than that of other children who suffered from the disease. (Participant P)</i> <i>I wrote down my concerns and asked the doctor myself about visiting the hospital. (Participant K)</i>
	Passive attitude toward obtaining information about the disease and attending health-care visits by oneself	CCSs' limiting the amount of information available regarding their disease and physical condition with a passive attitude and relying on parents to explain and ask questions to medical staff at the time of hospital visits. <i>I don't know much about the illness so I don't have to worry about it in vain, and I leave it to my mother. Optimistically, I feel like it's okay because it will heal anyway. (Participant C)</i> <i>Basically, my mother and doctor are just talking, so I feel like I don't want to hear the content. The first time I was cured, so I felt that the second time I would also be cured. (Participant E)</i>
	Awareness of the necessity to continue hospital visits even into adulthood	Having awareness of the need to continue receiving medical care and intending to do so even after becoming an adult for a long time after the completion of pediatric cancer treatment. <i>Doctors and mothers tell me that I will probably go to the hospital for the rest of my life and that I should get a good health check. I can't imagine it concretely, but it was a disease that would kill me if left alone, so I think I will go to the hospital for the rest of my life. (Participant I)</i> <i>I have had radiation therapy, chemotherapy, and a bone marrow transplant, which have affected my growth, including my height, and whether the hormones in my blood are working properly. Therefore, I understand the need for me to attend an outpatient clinic for CCSs. (Participant R)</i>
	Worries about work	Worrying about finding employment or continuing to work. <i>I can't keep up with the people around me because of the late effects, such as tiredness and slow thinking. I'm worried about whether I can get a job or work. I regularly go to employment counseling in the area. The counselor listens to everything about my body and the future, so I expect to find a job that suits me. (Participant M)</i>

TABLE 6 Summary of category (7th) and concepts

Category	Concept	Definition of each concept and supporting quotations
7. Finding a way to live with oneself	Self-supporting behaviors of daily living	CCSS' performing or willing their own living activities independently from surrounding people such as parents without excusing their illness. <i>As I went to junior high school by train and left my mother, I began to think that I had to do it properly without relying on my mother in terms of my physical condition and behavior. (Participant P)</i> <i>When I was in university, I lived alone and I did my own thing. I realized how hard it is to do household chores such as cooking and laundry, and to work part-time. Living alone gave me a sense of freedom and self-responsibility. (Participant J)</i>
	Willing to attend hospital visits by oneself	The consciousness or actual performance of attending hospital visits without an accompanying parent, sharing information with medical staffs, and managing the information by oneself. <i>I am going through the procedure of hospital visits by myself gradually so that I can do it on my own, even if I attend another hospital. (Participant I)</i> <i>I have been coming to the hospital on my own since I got a driver's license after high school. (Participant M)</i> <i>I decided for myself to attend another hospital near my work. I had called this hospital previously and asked to receive a medical certificate on that day. (Participant V)</i>
	Self-determination of one's life path	The consciousness that CCSSs have made their own decisions regarding their career choices, taking into consideration various factors such as their interests and environment. <i>Originally, I acted on my own initiative, not on the opinions of my parent. This was especially true for going on to higher education and getting a job after high school. Psychologically, I think I've been independent for a long time. Since I left my parents' house, I feel that I am the most independent in terms of form. (Participant N)</i> <i>I decided my own course after high school while being influenced by the way of thinking of various people. (Participant D)</i>
	Willing to earn a living on one's own	Trying to manage financial aspects by making a living without relying on parents, or by living away from parents and being interested in finances, including medical expenses and managing money. <i>In terms of money, I think I became independent after I started working. I realize I'm working and paying for what my parents used to pay for. I thought it was so expensive the first time after paying for medical expenses. (Participant J)</i> <i>When I entered vocational school and had to leave my parents to manage my money, I felt a little more independent. When I returned to my parents' house after getting a job, I saved money to live alone. (Participant F)</i>
	Preparing to explain the disease to others	CCSS' thinking about explaining their disease to others in the future while assuming the needs, situations, and feelings of themselves and others. <i>I think I should tell my employer about my disease and hospital visits. (Participant R)</i> <i>I should tell my partner about my disease if I get married in the future. (Participant F)</i>

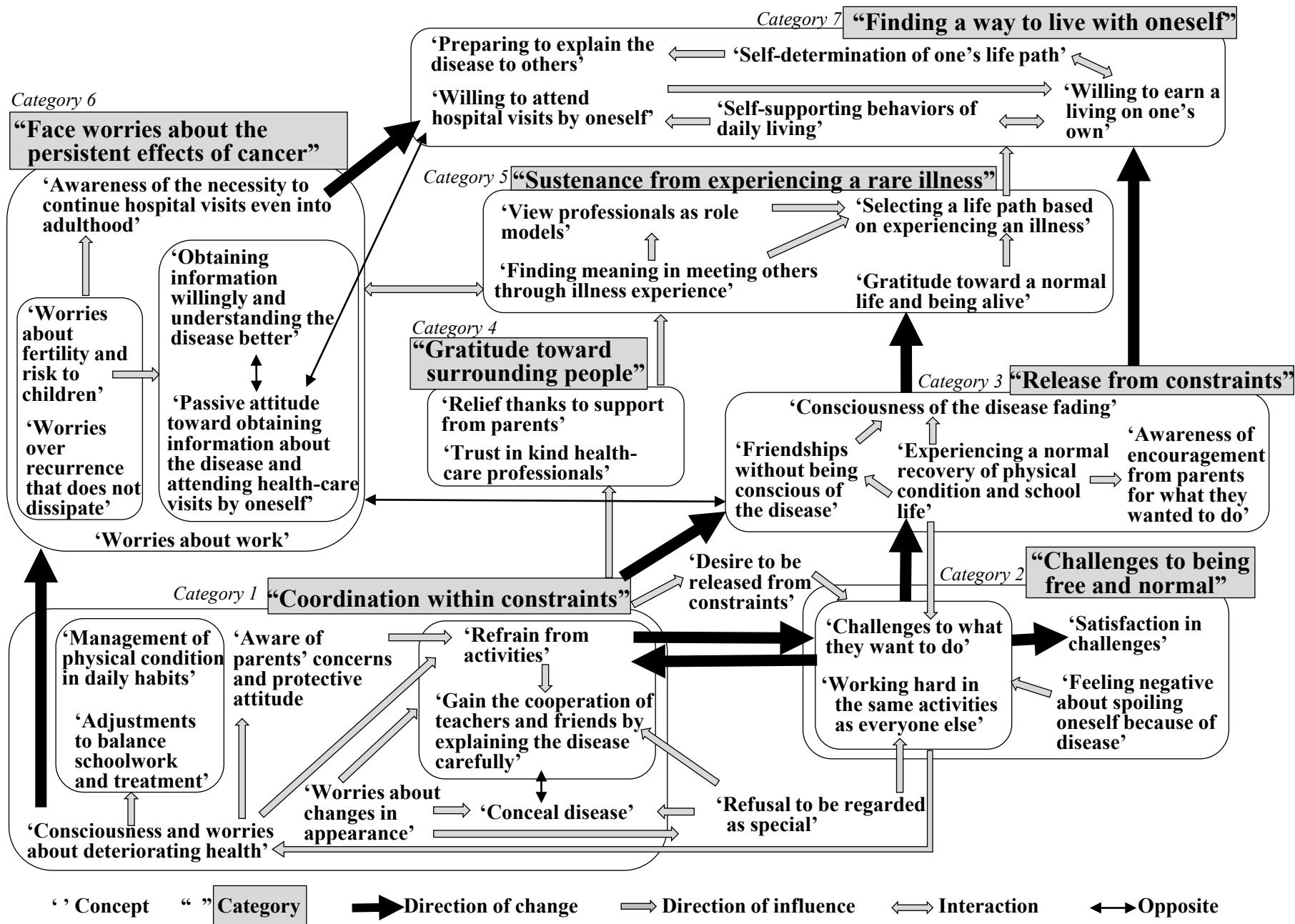


FIGURE 1 The process of becoming independent while balancing health management and social life among childhood cancer survivors transiting from adolescence to adulthood