

Review paper

Consequences of Altered Body Image in Adolescents with Cancer: A Narrative Review

ABSTRACT

Background: The diagnosis of cancer develops many challenges for adolescents who need to deal effectively with their normal developmental milestones. Changes associated with cancer treatment are considered stressful and impact negatively on adolescents' psychosocial status. Adapting to body image changes is essential to the ultimate coping with cancer.

Aim: This study aimed to present a narrative review of the literature related to body image changes in adolescents with cancer and coping strategies.

Method: Searching for keywords was performed in various databases including CINAHL, PubMed Central, and EBESCO.

Results: Altered appearance was appraised by adolescents as a threatening and upsetting issue that negatively influenced their lives. However, adolescents with cancer used many strategies to deal effectively with their changed appearance. These coping mechanisms included strategies for concealing signs, strategies for instilling hope, and strategies for gaining social support.

Conclusion: Altered body image resulting from cancer and its treatment is the most distressing factor among adolescents with cancer. Medical staff should be trained and oriented about the physical and psychosocial impact of cancer on adolescents through continuous training and follow up programs. Nurses should give the opportunity for adolescents to express their own feelings and concerns about the effects of chemotherapy on their physical appearance.

Keywords: Adolescents, cancer, body image, coping strategies

1. INTRODUCTION

Body image is a central issue during adolescence. Self-concept and self-esteem are linked to body image; in other words, adolescents who perceive their body image differently or abnormally than peers may view themselves negatively [1, 2]. Changes associated with cancer treatment can be more intense with adolescents causing deterioration in identity formation [3]. These changes may produce a negative impact on adolescents' self-recognition of their body image and feeling of normality [4, 5, 6]. Many studies have been conducted to explore body image changes in adolescents with cancer and coping strategies. This paper discusses the concept of body image and reviews studies concerned with body image among adolescents with cancer. It blends the concepts of body image changes with coping strategies that are usually undertaken by adolescents with cancer.

2. BODY IMAGE CONCEPT

The concept of body image has been studied over the last half century [7]. It has been influenced by many disciplines, scientists and practitioners [8]. However, there is no consensus for the definition of the concepts of body image [7]. Historically, the perception of "body image" or "body schema" began with clinical attempts to understand neuropathological forms of body experience including phenomena such as "phantom limb", and "autopagnosia" [8]. Several researchers have defined body image to comprise both perceptions and attitudes of person's body. Roid and Fitts (1998) defined body image as "a mental picture of the "physical self" and it includes attitudes and perceptions of ones physical appearance, state of health, skills, and sexuality" (as cited in [9] p. 176). On the other hand, body image was defined as an integral component of an individual's physical self which was considered as a subdimension of self-concept [10]. In addition, body image encompasses an individual's body related self-perception and self-attitude and it is linked to self-esteem, interpersonal confidence, eating and exercise behaviors, sexual experiences, and emotional stability [11]. Similarly, Alipoor et al. (2009) defined body image as a psychological construct which refers to self-concept including self-image and feelings of an individual's perception of his or her body [12].

Researchers have agreed that body image is a multi-dimensional construct [7]. Probst et al. (1998) divided the concept of body image into three dimensions that can be differed at any time. The first dimension is a cognitive response which indicates how an individual "thinks" he or she looks; the second is an affective response refers to how an individual "feels" he or she looks; and the last is an optative response indicates how an individual "wants" to look [13]. Similarly, Wu & Chin (2003) have considered body image as a dynamic concept that is composed of what an individual feels and thinks about his or her body [14]. Cash (2004) defined body image as a multidimensional psychological construct that embraces both body-related self-perception and self-attitudes including thoughts, beliefs, feelings, and behaviors [8].

On the other hand, body image formation falls into a social and cultural context, so the greater dissatisfaction arises as self-perception of personal appearance deviates from the idealized cultural standard [15]. Therefore; body image is developed when individuals internally compare themselves with others and with cultural ideals considering that real and imagined feedback from others is important [9]. In the same way, Martin (2010) reported that body image is a subjective concept of one's physical appearance based on self-observation and the reaction with others. Martin asserted that "ideal" body image is determined by one's cultural group that enhances feeling of beauty or success in achievement of the optimal physical status. Therefore, "ideal" body image varies between cultural groups, ethnic groups, and with any other groups to which one belongs [16].

The term of body image also describes the state of overall wholeness, functionality, and ability to interact with others [17]. As a result, body image can significantly affect the way of how an individual perceives and interacts with the surrounding environment [12]. Therefore, the individual with a distorted body image may suffer from low self-esteem or lack of feelings of self-worth [12]. Consequently, people would seek some modifications in their appearance such as grooming, distraction, or concealment by using makeup, special clothing, and accessories [4].

3. DISTRESSING BODY IMAGE CHANGES IN ADOLESCENT CANCER PATIENTS

The advancement in medical technology has led to increased survival from cancer. However, some obstacles inhibit the success of treatment and aggravate the harmful effects of cancer treatment in addition to delay adolescents' coping process. The following

distressing domains contribute significantly to the feeling of stress. Physical and psychosocial consequences resulting from cancer treatment may disturb body image, induce the sense of alienation, and impede restoring normal life. However, some studies found positive consequences of cancer and its treatment.

3.1 PHYSICAL-RELATED CONSEQUENCES

The diagnosis and treatment of cancer are a stressful and threatening experience that may be emotionally harmful to adolescents [18, 19]. The results gained from the therapy may be explicit or hidden for several months or years after completion the treatment [20]. The intensity of later signs of cancer is related to the location and the extent of therapy, the kind of treatment, patient's age, and preexisting factors [20]. Young patients face some difficulties to accept treatment which impair their independency and may negatively affect their body image [21].

Altered appearance due to cancer treatment can be directly or indirectly observed and it can affect long term recovery from both physical and psychological aspects.

Previous studies reported that hair loss is considered as one of the most distressing and noticeable effects of cancer treatment [4, 5, 6, 22, 23, 24]. Hair loss, thinning of the hair or bald patches produced by cancer treatment create a permanent reminder of cancer, therefore, adolescents have few choices to hide the fact that they have cancer [23].

Similarly, Grinyer (2007) stated that hair loss is the main source of distress and it is usually perceived by adolescents as threatening to self-esteem [24].

Fatigue and tiredness are also debilitating factors that induce a feeling of poor body functioning and have a negative effect on body image [23, 25]. Changes in the bone growth can be a serious problem in adolescents because during puberty, some noticeable differences between adolescents who undergoing treatment and healthy peers appear [23]. Additionally, adolescents with cancer may have altered skin integrity. The placement of a central venous device may result in deteriorated body image, and may become a constant reminder of the disease and its treatment. It may also cause an alteration in body appearance and invasion of physical integrity [3, 4]. In addition, cancer treatment can cause immuno-suppression and subsequently cause infections, thrombocytopenia, anemia, malnutrition, nausea, vomiting, constipation, oral mucositis, and pain [18, 25, 26, 27]. Late physical effects may cause damage to kidneys, lungs, heart, and other vital organs, increase a risk of secondary malignancies, chronic obesity, infertility, learning impairments, speech and hearing difficulties, neurocognitive deficits, and mild to severe physical impairment [28, 29].

Cancer survivors may also be at risk for unknown changes that result from new therapies [28]. Several studies were conducted to explore distress associated with cancer and its treatment. A study by Hedstrom et al., (2003) assessed distress resulting from cancer and its treatment in children and adolescents with cancer. A descriptive design was used to conduct 50 interviews with patients, 65 interviews with parents, and 118 with nurses. The study revealed that changes in appearance characterized by losing hair, visible nasogastric tubes, weight gain, using a wheel chair, and the visible implanted venous access device under the skin were the most distressing factors in patients whose ages were more than 13 years old [30]. In the same way, Hedstrom et al. (2005) found that the most prevalent distressing factors were; losing hair (91%), missing leisure activities (84%), weight loss or gain (80%). In addition, 38% of adolescents reported worry about changed appearance and 45% reported worry from round face [31]. However, the previously discussed two studies have examined a heterogeneous sample in terms of cancer type and treatment duration. This indicates an inconsistency in the characteristics of patients involved in the study because the perspectives of patients might differ over time and conditions which limits the generalizability of the results. Another study by Mattsson et al. (2007) explored the impact of cancer on adolescents. Thirty eight patients aged between 13-19 years were interviewed via telephone

calls to seek their recognition of good and bad things during chemotherapy period. Adolescents reported several physical problems due to changes in their appearance. They stated that their body appearance is not as they desire. Various physical problems limited their activities such as "tiredness", "feeling destroyed", and being in "bad shape" [32]. On the other hand, Hokkanen et al. (2004) were interested to study how adolescents with cancer conceive their current life and how they envision the future. Twenty patients aged between 13-18 years were interviewed using focus groups. The findings revealed that adolescents were pleased to be alive. However, they reported negative feelings due to changes in physical appearance, anxiety, and sense of inferiority. Changes in physical appearance included, hair loss, scars, and small teeth. Some adolescents were bullied from school due to the changes in their physical appearance and impaired physical functioning [33]. Similarly, Cicogna et al. (2010) studied the same issue and used semi-structured interviews in ten children and adolescents between 8-18 years who were undergoing chemotherapy. The study revealed that chemotherapy is associated with undesirable effects due to the physical changes and its relationship with body integrity. Physical problems include discomfort, nausea and vomiting, malaise, poor appetite, and headache. Weight loss and alopecia were the most distressing factors due to people's comments [25]. A study by Wallace et al. (2007) examined appearance-related concerns in adolescents with cancer. Semi-structured interviews were conducted with six females who were undergoing cancer treatment and aged between 14-19 years. The results indicated that the worst side effect of treatment was hair loss which induced anxiety, in addition to scarring, bloating, rapid weight changes, and stretch marks. Altered appearance was significant during treatment and holding up as a constant reminder of "difference" and "marker of illness". However, the previous study excluded vulnerable and delicate patients who were thought to have psychological distress while interviewing. It is assumed that those patients with psychological disturbances or who could not sustain longer in the study might generate some essential inferences that reflect an actual psychosocial disturbances resulting from cancer [5]. Williamson et al. (2010) also investigated the impact of altered appearance during cancer treatment. Four adolescents and six of their parents were interviewed in addition to eighteen adolescents aged between 13-18 years shared in online survey. The study found that adolescents with cancer experience distress due to the alterations in their appearance. They indicated that their appearance differed from their peers and they viewed themselves unattractive, ugly, aged or ill looking. They were also worried about scarring, stretch marks, weight loss, bruising, spots, and looking ill. Hair loss and weight gain were reported most frequently. However, because of using a small sample, this study becomes less transferable to similar situation [6].

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3.2 PSYCHOSOCIAL-RELATED CONSEQUENCES

Changes in personal appearance often lead to isolation, depressed mood, loss of hopefulness, increased dependence on family, and separation from peers [34]. According to Callaghan (2007) increased demands of illness threaten the adolescents' ability to establish the sense of identity and peers relationships [35]. Social isolation is the most harmful effect that might deteriorate a persons' self-confidence [24]. In addition to the physical issues, survivors have to cope with emotional, social, economic, and academic consequences during cancer treatment [20]. Treatment protocols obligate adolescents to stay longer in the hospital, and it may also induce depression, alienation, and physical pain [28, 21]. Yeh (2002) found that persistent vomiting, nausea, fever, oral and anal ulcers, eating disorders, and weight loss are frequent side effects of cancer treatments that cause distress and hopelessness [36].

187 McCaffrey (2006) explored the major stressors experienced by patients diagnosed with
188 cancer aged between 5-15 years and the effect of these stressors on their physical and
189 psychological wellbeing. An in-depth series of focus group discussions were conducted with
190 patients, parents, and hospital professional. The study revealed that several stressors were
191 articulated by participants. Compromised body image was the major stressor reported by
192 professionals and patients. It has affected patients' self-esteem negatively overtime and
193 increased patients' embarrassment. They recognized themselves as a burden on others and
194 they hope to change their physical appearance. However, patients' age of five years old in
195 this study can be criticized as an incapable age for expressing in-depth emotions in a logical
196 context [37].

197 Similarly, Hedstrom et al. (2004) explored distressing factors and the experience of
198 adolescents with cancer. A cross-sectional descriptive design was used and semi-structured
199 interviews were conducted with 23 adolescents aged between 13-19 years, and 21 nurses.
200 Eleven of adolescent patients were undertaking treatment while twelve of them had
201 completed the treatment. The findings indicated that cancer in adolescence is associated
202 with a range of negative experiences such as fear of alienation, fear of altered appearance,
203 fear of dying, and various physical concerns. Adolescents who were informed of the
204 diagnosis of cancer developed feelings of fear relating to losing hair or having a leg
205 amputated [38].

206 Consistent with the findings of the previous study; Carlsson et al. (2008) reported that
207 adolescents with cancer experienced fear related to the physical body, existential fear, and
208 fear related to the social life. Adolescents who experienced fear related to the physical body
209 were terrified from altered appearance such as losing hair, having weight gain or loss,
210 looking different, being pale, having a feeding tube fixed to the chin, loss of energy and
211 having a part of the body removed. The experience of weight changes caused lower self-
212 esteem and problems in clothing. Therefore, altered appearance was a fearful aspect and
213 caused feelings of alienation [39].

214 In addition to that, Williamson et al. (2010) found that changes in appearance may result in
215 low self-esteem and fewer social interactions [6]. Also, the periods of isolation, losing
216 contact, or rejecting friends caused feelings of loneliness. Hence, changes in appearance
217 impacted negatively on behaviors by restricting social activity [5]. Hokkanen et al. (2004)
218 also revealed that altered appearance due to cancer treatment may induce isolation from
219 family and friends and lead to sporadic school attendance [33].

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222 **3.3 POSITIVE-RELATED CONSEQUENCES**

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224 Despite the fact that cancer treatments produce many negative physical, psychological, and
225 social consequences, some studies found that cancer experience can contribute positively to
226 some aspects such as enhancing maturity and developing personality. For example,
227 Maggiolini et al. (2000) evaluated the impact of leukemia on adolescents' daily life. A
228 quantitative cross sectional design was conducted in two groups; seventy adolescents aged
229 between 12-20 years who had survived leukemia and seventy participants for the control
230 group selected based on specific criteria for age, sex, and socio-economic status. The
231 findings revealed that adolescents who experienced leukemia showed more emotional
232 stability and positive body image than the another group. They felt more confidence to face
233 difficulties and to make decisions. They also reflected their ability to adapt and
234 accommodate with the external challenges [40].

235 Hedstrom et al. (2004) also asserted that some positive experiences were noted during
236 cancer treatment such as positive relations with staff and having appropriate information
237 about cancer and its treatment from competent professionals [38]. In a study by Wallace et
238 al. (2007), adolescents showed some positive changes due to cancer treatment such as
239 valuing the importance of life and enjoying their time. They felt stronger, confident, and able

to deal with other stressful situations effectively. In addition, adolescents showed a desire to remain normal as previous and therefore, they refused being described as "ill persons", and they denied their "sick role" [5]. Mattsson et al. (2007) also found that some patients with cancer reported a positive change in maturity and development which enhanced better self-esteem compared with other normal persons [32].

In conclusion, cancer and its treatment have many negative physical and psychosocial consequences, considering that physical changes may induce social isolation and poor interpersonal interaction. However, some studies revealed that adolescents with cancer may be motivated by that distressing illness to develop their self-identity, positive relationship with others and attaining self-confidence toward the disease and its treatment.

4. COPING STRATEGIES WITH BODY IMAGE CHANGES

The previously discussed studies described the potential physical and psychosocial consequences resulting from cancer treatment as experienced by adolescents. Adolescents cancer patients reported that their life is stressful compared with healthy peers, they have more restrictions and limitations in their daily living activities and they need extraordinary efforts to cope [33]. However, adolescents with cancer have to cope effectively with the physical changes [41]. Effective coping has been linked with the sense of control, positive emotions, and available resources [42].

Tseng et al. (2008) asserted that adolescents have many kinds of pressures imposed on them such as changes in their appearance and alterations in puberty [43]. These changes may be appraised by adolescents as threats [23, 44]. However, when adolescents are able to adapt with these normal developmental changes, they can produce positive outcomes that enhance their development. Depending on the effectiveness of the adolescent's ability to cope, the diagnosis of cancer can yield either irreparable damage or successful maturation [45]. The following coping strategies were acknowledged by adolescents with cancer as effective techniques that helped them to deal with the surrounding stressors caused by cancer treatment.

4.1 STRATEGIES FOR CONCEALING SIGNS

Several techniques might be used to hide the visible signs of cancer such as hair loss, weight loss or gain, and skin discolorations. Wallace et al. (2007) found that patients with cancer dealt with losing their hair by getting it cut into very short length and then shaving it completely [5]. Adolescents also managed hair loss by using practical strategies including wearing caps and scarves, and using wigs and hair extensions that enabled them to engage in the community without embarrassment [4, 5, 45]. Williamson et al. (2010) confirmed that the need to feel normal was a main motivator for adolescents to cope with their altered body image; they used strategies to improve their appearance such as using camouflage techniques, fashionable accessories, jewelry, and makeup like eyeliner and colorful powder. Wigs were acknowledged as a helpful device, but criticized as uncomfortable, itchy, and a source of stigma [6]. Juvakka and Kylma (2009) also found that using wig is not helpful in all situations as some participants found wig unpleasant and difficult to be used [46].

4.2 STRATEGIES FOR INSTILLING HOPE

Patients may rely on some strategies to help them in instilling hope and returning to the normal life. Kyngas et al. (2001) found that belief in recovery, belief in God, getting back to normal life, a positive attitude toward life, hope to recover, and willingness to fight the disease were effective resources to cope with cancer and its treatment [47]. Wu et al. (2009)

studied coping experiences in adolescents with cancer. Ten adolescents aged between 12-18 years who received chemotherapy were interviewed. Two major themes of the coping experience emerged; "losing confidence" and "rebuilding hope". Loss of confidence was developed when difficult clinical situations exceeded patients' level of tolerance and affected their efforts to retrieve hope. Losing confidence resulted in physical and psychological disturbances and therefore, there was a tension between losing confidence and rebuilding hope while receiving treatment. Participants kept moving toward rebuilding hope; they focused on the belief that they could restore their normal life by restructuring, revaluing, and envisioning hopeful images [48]. On the contrary, Juvakka and Kylma (2009) found that altered body image is a factor that represses hope in adolescents with cancer. Participants reported that loosing hair changed their appearance and induced feeling of alienation [46].

4.3 STRATEGIES FOR GAINING SOCIAL SUPPORT

Obtaining support from health care providers, family, parents and friends was one of the major coping strategies used by adolescents to bridge the gap between the illness and health, and to minimize the state of isolation. In a study by Kyngas et al. (2001) fourteen adolescents and young adults with cancer revealed that social support was a major coping strategy [47]. Other studies also claimed that adolescents seek support from parents, relatives, and teachers [33, 45, 49, 50, 51]. Williamson et al. (2010) also found that adolescents managed their reactions with people by choosing the most appropriate time to interact with others. Humor was a useful strategy to reduce discomfort and tension. Peers and family support were highly valued and adolescents appreciated the reassurance and acceptance of their appearance by parents and friends. By this, adolescents learned the benefits of being confident and informative when faced negative reactions [2]. Similar to the previous findings Larouche and Chin-Peuckert (2006) reported that adolescents with cancer found distinct ways to deal with their body changes and control their feelings towards their body image. The following coping strategies were created by adolescents to manage their physical and social deterioration; (1) avoiding social situations, (2) trying to maintain normality by using different measures to conceal physical changes associated with cancer treatment, (3) peer-shield, which means that adolescents rely strongly on their friends to act with them away from other people's mocks and comments, (4) testing the water used when adolescents choose the most appropriate time to react with others [4]. In addition to gaining support from others, some studies found that time distraction is one of the effective techniques to cope with the disease. For instance, Enskar et al. (1997) and McCaffrey (2006) found that many children and adolescents watch television or movies as a coping technique to pass the time faster [37, 49]. McCaffrey (2006) reported that some adolescents used painting as another source of enjoyment and expressing self. Listening to their favorite music and popular stories for entertainment and distraction were also helpful [37]. In conclusion, these are some coping strategies undertaken by adolescents with cancer to accommodate with the distressing factors associated with cancer and its treatment. Social support, concealing signs, distraction, and hope are the most common methods used to cope successfully with cancer treatment as suggested by adolescents.

5. SUMMARY

Cancer is a disease associated with destructive side effects that influence both physical and psychosocial performance. It is considered as a distressing diagnosis to adolescents' body image, autonomy, and independency. Body image is a complex and multidimensional

construct that involves body-related self-perception and self-attitudes, including thoughts, beliefs, feelings and behaviors. It is influenced by a variety of historical, cultural, social, and individual factors. Previous studies revealed that hair loss, presence of a central line, and weight changes are the most distressing physical changes that can impair adolescents' body integrity. As a result, adolescents might become socially isolated instead of maintaining normal socialization. Body image is associated with patients' self-esteem, and there is a relationship between body image and psychosocial adjustment. In general, patients with cancer use different coping strategies to gain confidence and to rebuild hope. The following strategies helped adolescents to recover from the state of infirmity; wearing wigs, scarves, and hair extensions to hide alopecia, using cosmetic makeup and accessories, hope to recover, and willingness to fight the disease. Adolescents need to garner support from their family, society, and health care providers to be able to cope successfully with the stress of cancer and its treatment. In addition, time distraction and self-convincing strategies were appreciated as important factors for alleviating distressing factors. All studies agreed that body image changes are a major concern for adolescents who are facing a complex developmental milestone. In fact, qualitative research elicits rich data and deeper understanding using patients' perspectives. It provides the freedom to express and release participants' own views and feelings toward the effects of cancer and its treatment on their psychosocial life [5, 52, 53].

REFERENCES

1. Kyle T. Essentials of Pediatric Nursing. 1st ed. Lippincott, Williams & Wilkins; 2008.
2. Williamson H, Harcourt D, Halliwell E, Frith H, Wallace M. Adolescents' and parents' experiences of managing the psychosocial impact of appearance change during cancer treatment. *Journal of Pediatric Oncology Nursing*. 2010; 27(3): 168-175.
3. Jones B, Volker D, Vinajeras Y, Butros L, Fitchpatrick C, Rossetto K. The meaning of surviving cancer for Latino adolescents and emerging young adults. *Cancer Nursing*. 2010; 33(1): 74-81.
4. Larouche S, Chin-Peuckert L. Changes in body image experienced by adolescents with cancer. *Journal of Pediatric Oncology Nursing*. 2006; 23(4): 200-209.
5. Wallace M, Harcourt D, Rumsey N, Foot A. Managing appearance changes resulting from cancer treatment: Resilience in adolescent females. *Psychoncology*. 2007. 16:1019-1027.
6. Williamson H, Harcourt D, Halliwell E, Frith H, Wallace M. Adolescents' and parents' experiences of managing the psychosocial impact of appearance change during cancer treatment. *Journal of Pediatric Oncology Nursing*. 2010; 27(3): 168-175.
7. Chin Y, Taib M, Shariff Z, Khor G. Development of multi-dimensional body image scale for Malaysian female adolescents. *Nutrition Research and Practice*. 2008; 2(2): 85-92.
8. Cash T. Body image: Past, present, and future. *Body Image*. 2004; 1: 1-5.
9. Sheppard L A, Ely S. Breast cancer and sexuality. *The Breast Journal*. 2008; 14(2): 76- 181.

- 390 10.Hanna D, Roy C. Roy adaptation model and perspectives on the family. Nursing
391 Science Quarterly. 2001; 14(1): 9-13.
- 392 11.Huang J, Norman G, Zabinski M, Calfas K, Patrick K. Body image and self-esteem
393 among adolescents undergoing an intervention targeting dietary and physical activity
394 behaviors. Journal of Adolescent Health. 2007; 40: 245–251.
- 395 12.Alipoor S, Goodarzi A, Nezhad M, Zaheri L. Analysis of the relationship between
396 physical self-concept and body image: Dissatisfaction in female students. Journal of
397 Social Sciences. 2009; 5(1): 60-66.
- 398 13.Probst M,Vandereyckena W, Vanderlinden J, Coppenolle HV. The significance of
399 body size estimation in eating disorders: Its relationship with clinical and
400 psychological variables. International Journal of Eating Disorders. 1998; 24: 167-
401 174.
- 402 14.Wu L, Chin C. Factors related to satisfaction with body image in children undergoing
403 chemotherapy. The Kaohsiung Journal of Medical Sciences. 2003; 19: 217–224.
- 404 15. Reas L, Grilo C. Cognitive behavioral assessment of body image disturbance.
405 Journal of Psychiatric practice. 2004; 10(5): 314-322.
406
- 407 16.Martin J. The development of ideal body image perceptions in the United States.
408 Nutrition Today. 2010; 45(3): 98-110.
- 409 17.Pelusi J. Sexuality and body image: Research on breast cancer survivors'
410 documents altered body image and sexuality. The American Journal of Nursing.
411 2006; 106(3): 32-38.
- 412 18.Li H, Chung O, Chiu S. The impact of cancer on children's physical, emotional, and
413 psychosocial well-being. Cancer Nursing. 2010; 33(1): 47-54.
- 414 19.Woodgate R, Degner L. A substantive theory of keeping the spirit alive: The spirit
415 within children with cancer and their families. Journal of Pediatric Oncology Nursing.
416 2003; 20(3): 103-119.
- 417 20.Bottomley SJ, Kassner E. Late effects of childhood cancer therapy. Journal of
418 Pediatric Nursing. 2003; 18: 126-133.
- 419 21.Smith S, Davies S, Wright D, Chapman C, Whiteson M. The experiences of
420 teenagers and young adults with cancer-results of 2004 conference survey.
421 European Journal of Oncology Nursing. 2007; 11: 362–368.
- 422 22.Enskar K, Von Essen L. Prevalence of aspects of distress, coping, support and care
423 among adolescents/ young adults undergoing and being off cancer treatment.
424 European Journal of Oncology Nursing. 2007; 11: 400–408.
- 425 23.Evans M. Altered body image in teenagers with cancer. Journal of Cancer Nursing.
426 1997; 1(4): 177-182.
- 427 24.Grinyer A. The biographical impact of teenage and adolescent cancer. Chronic
428 Illness. 2007; 3: 265-277.

- 429 25.Cicogna E, Nascimento L, Lima R. Children and adolescents with cancer:
430 Experiences with chemotherapy. *Revista Latino-Americana de Enfermagem*. 2010;
431 18(5): 864-872.
- 432 26.Bryant R. Managing side effects of childhood cancer treatment. *Journal of Pediatric*
433 *Nursing*. 2003; 18(2): 113-125.
- 434 27. Woolery M, Carroll E, Fenn E, Weiland H, Jarosinski P, Corey B, et al. A
435 constipation assessment scale for use in pediatric oncology. *Journal of Pediatric*
436 *Oncology Nursing*. 2006; 23(2): 65-73.
- 437
438 28.Jones B. Promoting healthy development among survivors of adolescent cancer.
439 *Family Community Health*. 2008; 31(1): 61–70.
- 440 29.Smeltzer S, Bare. *Brunner and Suddarth's Textbook of Medical-Surgical Nursing*.10th
441 ed. Lippincott Williams & Wilkins; 2004.
- 442 30.Hedstrom M, Haglund K, Skolin I, Von-Essen L. Distressing events for children and
443 adolescents with cancer: Child, parent, and nurse perceptions. *Journal of Pediatric*
444 *Oncology Nursing*. 2003; 20(3): 120-132.
- 445 31.Hedstrom M, Ljungman G, Von-Essen L. Perceptions of distress among adolescents
446 recently diagnosed with cancer. *Journal of Pediatric Hematology Oncology*. 2005;
447 1(27): 15-22.
- 448 32.Mattsson E, Ringner A, Ljungman G, Von-Essen L. Positive and negative
449 consequences with regard to cancer during adolescence. Experiences two years
450 after diagnosis. *Psycho-Oncology*.2007; 16: 1003–1009.
- 451 33.Hokkanen H, Eriksson E, Ahonen O, Salanterä S. Adolescents with cancer
452 experience of life and how it could be made easier. *Cancer Nursing*. 2004; 27(4):
453 325-335.
- 454 34.Corey A, Haase J, Azzouz F, Monahan P. Social support and symptom of distress in
455 adolescents and young adults with cancer. *Journal of Pediatric Oncology Nursing*.
456 2008; 25(5): 275-284.
- 457 35.Callaghan E. Achieving Balance: A case study examination of an adolescent coping
458 with life limiting cancer. *Journal of Pediatric Oncology Nursing*. 2007; 24(6): 334-
459 339.
- 460 36.Yeh C. Life experience of Taiwanese adolescents with cancer. *Scandinavian Journal*
461 *of Caring Sciences*.2002; 16: 232–239.
- 462 37.McCaffrey C. Major stressors and their effects on the well-being of children with
463 cancer. *Journal of Pediatric Nursing*. 2006; 21(1): 59-66.
- 464 38.Hedstrom M, Skolin I, Von-Essen L. Distressing and positive experiences and
465 important aspects of care for adolescents treated for cancer: Adolescent and nurse
466 perceptions. *European Journal of Oncology Nursing*.2004; 8: 6-17.
- 467 39.Carlsson A, Kihlgren A, Sorlie V. Embodied suffering: Experiences of fear in
468 adolescent girls with cancer. *Journal of Child Health Care*. 2008; 12(2): 129-143.

- 469 40.Maggiolini A, Grassi R, Adamoli L, Corbetta A, Charmet G, Provantini K, et al. Self-
470 image of adolescent survivors of long term childhood leukemia. *Journal of Pediatric*
471 *Hematology/Oncology*. 2000; 22(5): 417–421.
- 472 41.Pendley J, Dahlquist L, Dreyer Z. Body image and psychosocial adjustment in
473 adolescent cancer survivors. *Journal of Pediatric Psychology*.1997; 22(1): 29-43.
- 474 42.Folkman S, Moskowitz JT. Coping: Pitfalls and promises. *Annual Review of*
475 *Psychology*. 2004; 55: 745-774.
- 476 43.Tseng T, Cleeland C, Wang X, Lin C. Assessing cancer symptoms in adolescents
477 with cancer using the Taiwanese version of the M. D. Anderson Symptom Inventory.
478 *Cancer Nursing*. 2008; 31(3): 9-16.
- 479 44.Abrams A, Hazen E, Penson R. Psychosocial issues in adolescents with cancer.
480 *Cancer Treatment Reviews*.2007; 33(7): 622-630.
- 481 45.Ramini S, Brown R, Buckner E. Embracing changes: Adaptation by adolescents with
482 cancer. *Pediatric Nursing*. 2008; 34(1): 72-79.
- 483 46.Juvakka T, Kylma J. Hope in adolescents with cancer. *European Journal of*
484 *Oncology Nursing*. 2009; 13: 193–199.
- 485 47.Kyngas H, Mikkonen R, Nousiainen E, Ryttilahti M, Seppanen P, Vaattovaara R, et
486 al. Coping with the onset of cancer: Coping strategies and resources of young
487 people with cancer. *European Journal of Cancer Care*. 2001; 10(1): 6-11.
- 488 48.Wu L, Chin C, Haase J, Chen C. Coping experiences of adolescents with cancer: A
489 qualitative study. *Journal of Advanced Nursing*. 2009; 65(11): 2358-2366.
- 490 49.Enskar K, Carlson M, Hamrin E. Symptom distress and life situation in adolescents
491 with cancer. *Cancer Nursing*.1997; 20(1): 23-33.
- 492 50.Freeman K, O'Dell C, Meola C. Childhood brain tumors: Children's and siblings'
493 concerns regarding the diagnosis and phase of illness. *Journal of Pediatric Oncology*
494 *Nursing*. 2003; 20(3): 133-140.
- 495 51.Stegenga K, Ward-Smith P. On receiving the diagnosis of cancer: The adolescent
496 perspective. *Journal of Pediatric Oncology Nursing*. 2009; 26(2): 75-80.
- 497 52.Woodgate R. Part II: A critical review of qualitative research related to children's
498 experiences with cancer. *Journal of Pediatric Oncology Nursing*. 2000; 17(4): 207-
499 228.
- 500 53.Woodgate R. A different way of being adolescents' experiences with cancer. *Cancer*
501 *Nursing*. 2005; 28(1): 8-15.

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