

## Distressing Factors Experienced by Jordanian Adolescents with Cancer: A Qualitative Study

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**Abstract: Background:** Cancer is the second cause of death after cardiovascular diseases in Jordan. The outset of the disease is a traumatic life event as cancer patients encounter many stressors resulting from cancer diagnosis, medical interventions, and treatment downside effects. **Aim:** This study aimed to explore distressing factors experienced by Jordanian adolescents with cancer who are undergoing chemotherapy. **Method:** A qualitative exploratory design was used to gain an understanding about this phenomenon. Fifteen adolescents were recruited purposively from two major cancer treatment centers in Amman, the capital of Jordan. Data were gathered through semi-structured, face-to-face interviews allowing participants to speak freely about their own experiences. These interviews were transcribed verbatim and translated from Arabic into English. Dataset was analyzed using the inductive thematic analysis technique. **Results:** The study revealed many sources of distress that adolescents were engaged with. These sources were organized into three major themes: "Physical-related stressors", "Emotional-related stressors", and "Treatment-related stressors". However, participants demonstrated mastery to adapt with their stressors using some adaptation strategies which have formed the fourth theme "Enhancing normality". **Conclusion:** Cancer has a tremendous impact on adolescents' lives. Religion and social support were key factors that helped adolescents to continue living comfortably with their distressing situation. Nurses are encouraged to develop such social networks between patients and their healthy peers to enhance their sense of normality. In addition, nurses should appraise patients' specific problems, making purposeful plans, and initiating timely nursing intervention. [Ghada Mohammad Abu Shosha. **Distressing Factors Experienced by Jordanian Adolescents with Cancer: A Qualitative Study.** *J Am Sci* 2013;9(6):308-316]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>. 36

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### 1. Introduction

The onset of cancer is one of the most traumatic events that individuals encounter (Pinquart et al., 2007). Cancer patients suffer from negative physical, psychological, and social impact of cancer treatment leading to less positive treatment outcomes (Walker et al., 2010). In Jordan, around 231 children under the age of 15 years were newly diagnosed with cancer (Jordan Cancer Registry, 2009). At present, children with cancer have a better opportunity to survive than before; the use of aggressive multimodal therapies has resulted in increased survival rates (De Clercq et al., 2004; Fochtman, 2006). This improvement in the treatment strategies calls for increasing awareness of stressors associated with cancer treatment as well as the emotional and psychosocial wellbeing of cancer survivors (Linder, 2005; Shankar et al., 2005; Li et al., 2010).

Understanding the stressors associated with cancer treatment on patients particularly those in adolescence period becomes an important issue. Adolescents face many challenges as they move from childhood to adulthood (Evan & Zeltzer, 2006; Larouche & Chin-Peuckert, 2006; Woodgate, 2006). A study by Zebrack and Chesler (2001) revealed that all adolescent cancer survivors, even those who appear to be doing well, often suffer from

problems in social adjustment and continue to be concerned about their medical and social future.

Despite these negative consequences of cancer treatment, there is a dearth of evidence that explore distressing factors voiced by Jordanian adolescents with cancer who are undergoing chemotherapy. Therefore, the intent of this study is to explore distressing factors experienced by Jordanian adolescents with cancer. This will assist health professionals and nurses in particular to establish a better understanding and ultimately design appropriate therapeutic plans of care for those patients.

### Background

Young patients face many difficulties to accept treatment which impair their independency and may negatively affect their life. Cancer treatment can cause immunosuppression leading to infection, thrombocytopenia, and anemia. Malnutrition, nausea, vomiting, constipation, oral mucositis, and pain are also side effects of cancer treatment (Bryant, 2003; Woolery et al., 2006; Cicogna et al., 2010; Li et al., 2010). Fatigue and tiredness are also debilitating factors that induce a feeling of poor body functioning and have a negative effect on body (Evans, 1997; Cicogna et al., 2010). Adolescents with cancer may have altered skin integrity; the placement of a central venous device may become a constant reminder of the disease. It may also cause an alteration in body

appearance and invasion of physical integrity (Evans, 1997; Larouche & Chin-Peuckert, 2006).

A study conducted by Hedstrom et al. (2003) to explore distress associated with cancer and its treatment in children and adolescents with cancer revealed that nausea, pain, and changes in appearance were the most reported distressing factors. In the same way, Hedstrom et al. (2005) found that the most prevalent distressing factors were; losing hair, missing leisure activities, weight loss or gain. In addition, some adolescents reported worry about changed appearance and round face. 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. Adolescents reported several physical problems that limited their activities such as "tiredness", feeling "destroyed", and being in "bad shape". In addition to the physical issues, survivors have to cope with emotional, social, economic, and academic consequences during cancer treatment (Bottomley & Kassner, 2003). Treatment protocols obligate adolescents to stay longer in the hospital, and it may also induce depression, alienation, and physical pain (Smith et al. 2007; Jones, 2008).

In conclusion, cancer and its treatment have many negative physical and psychosocial consequences, considering that physical changes may induce social isolation and poor interpersonal relationship. The aim of this study is to explore distressing factors associated with cancer as experienced by Jordanian adolescents.

## 2. Methods

### Design

A descriptive qualitative design was used to comprehend distressing factors associated with chemotherapy. Qualitative research gives the researcher the opportunity to get a comprehensive understanding about certain phenomenon (Woodgate, 2000). It is required when the researcher looking for listening and understanding participants' views directly (Creswell, 2003; Creswell, 2009).

### Participants

Fifteen participants who are being treated with chemotherapy were recruited purposively to participate in this study. The eligible participants were initially selected by the assistance of the senior nurses from two major cancer treatment centers in Amman, the capital of Jordan. Participants who included in the study ranged in age from 13 to 19 years old, having any type of cancer for at least one year, receiving chemotherapy treatment for more than six months, being informed about their diagnosis, and able to speak and read Arabic smoothly. Conversely, patients who had other disorders, patients with decreasing level of consciousness, patients on other cancer

treatment modalities, and uncooperative patients were excluded from participation.

### Ethical considerations

Approvals for conducting this study were obtained from the Jordanian Ministry of Health and from a specialized cancer treatment center. Informed consents were obtained from all participants above the age of 18 years old and from parents of children under 18 years old. Participations were entirely voluntary and participants had the right to erase any personal information, or finish the interview at anytime. All participants were told about the use of an electronic recording device in the interviews and they had the right to refuse the tape recording or to delete any saved materials. To ensure confidentiality; no identification to the identity of participants and the hospitals were mentioned and each participant was given a code to be used for writing up.

### Data collection

Data were collected in Arabic language through semi-structured, face-to-face interviews. The researcher used an interview guide that comprised a number of open-ended questions related to stressors associated with cancer and the process of dealing with these stressors. The interview questions were extracted from literature (Hedstrom, et al., 2003; Hedstrom, et al., 2004; Hedstrom, et al., 2005; and Cicogna, et al., 2010) and validated by another two expert researchers in qualitative studies. All interviews were conducted in a private room based on participants' request. Questions were asked in a simple and understandable manner taking into consideration the participants' cognitive abilities and emotional status. Participants were encouraged to talk freely and to tell stories about their experiences with cancer. Each interview lasted between 50 minutes and one-hour and it was tape-recorded and then transcribed verbatim by the researcher. All transcriptions were checked again and translated into English. The translation process was then confirmed by a bilingual translator to make sure of the original meaning of each participant. The researcher invited each participant for another meeting via telephone calls to validate the study findings. Data collection started on the 5<sup>th</sup> of March until the 11<sup>th</sup> of July 2011.

### Data analysis

Data analysis was started concurrently with data collection. Transcripts were analyzed thematically using the stages of thematic analysis created by Marshall and Rossman (1999). The researcher firstly read each transcript frequently in order to understand the overall picture and to have a whole sense of the data. For each transcript, line by line searching for the ideas and phrases that pertaining to distress associated with cancer and its treatment was highlighted by the researcher. This technique helped the researcher to

code the data based on the cause of distress voiced by participants. The researcher used different colors for different codes. During the coding process the researcher wrote in a separate paper her ideas about the relationship between the codes considering the integrity of the whole meaning of the data. The researcher then categorized the codes that represent a specific and unique idea into subthemes. These subthemes were mutually exclusive meaning that each code was placed in only one category. The final themes were then formulated based on understanding the relationships between the subthemes. During the process of data analysis the researcher examined the emanated data, the meanings of data, and the integration of the whole story. Finally, the researcher drew the final thematic map and exhaustively described the themes and subthemes using excerpts taken from the participants' perspectives. Four main themes as well as nine sub-themes were emerged from this study.

### Trustworthiness of study findings

The researcher undertook several strategies to enhance rigorous findings. In-depth interviews with participants who were recruited purposively were conducted by the researcher to obtain rich information about their experience with cancer and chemotherapy. In addition, member checking was done by the same researcher which enhances the credibility of the data (Speziale & Carpenter, 2007). Regarding dependability of findings, transcripts were double checked to ensure accurate translation and understanding (Creswell 2009). Data coding and follow up for these codes and their relationship were done (Creswell 2009). To enhance confirmability, cross checking of the analysis process was done by external researcher. Also, rich and thick description of data analysis method was presented and therefore it can be audited by other investigators (Lewis & Ritchie, 2003; Speziale & Carpenter, 2007; Creswell, 2009). Finally, exhaustive description to convey the findings was done using quotes from participants' data. This would make the study findings transferable to similar situations (Speziale & Carpenter, 2007).

### 3. Findings

Fifteen adolescents aged between 13-19 years participated in this study, nine of them were females and six were males. Seven participants had leukemia, three had lymphoma, three had ovarian cancer and two had osteosarcoma. The duration since diagnosis ranged from 13-17 months and the duration of chemotherapy treatment ranged from 7-13 months. Three major themes related to stressors associated with cancer and chemotherapy were emerged from this study. These themes were: "Physical-related stressors", "Emotional-related stressors", and

"Treatment-related stressors". However, participants in this study found distinct ways to deal with these stressors which negatively affected their lives. These strategies were clustered under the fourth theme called "Enhancing normality". Table 1 illustrates the emerged thematic map.

#### Theme 1: Physical-related stressors

Physical impact of cancer and chemotherapy has its greatest effects on participants throughout their treatment journey. All participants talked about the harmful effects of chemotherapy on their body. These effects were categorized into two subthemes to include: physiological changes and appearance changes.

##### Physiological changes

Participants reported many physical signs and symptoms associated with chemotherapy including pain, lack of energy, fatigue and general weakness.

Pain was described by participants as a very bothersome and horrible symptom. They attributed pain to many reasons such as muscular and abdominal pain following chemotherapy and other medical procedures such as injection and intra-venous cannulation. The following statement reflects a participant's view:

*"Every time I got chemotherapy, I have severe muscular and joint pain, it's very bad, it's worse than you think and it cannot be tolerated, I think, there is no need for analgesic, this pain cannot be relieved by medication"* (Participant 3).

Lack of energy, fatigue and general weakness are also annoying symptoms reported by most participants. These symptoms affected their daily activities and social lives. One participant expressed his suffering as:

*"Sometimes I feel that all my body is tired and that I cannot get out of bed...I just want to stay in bed"* (Participant 1).

Another participant said:

*"I cannot describe fatigue... it cannot be described. Sometimes I do not have the energy to hold a glass of water, sometimes I cannot walk for five minutes... many times I cannot stay with my relatives and my friends, and I cannot go to school regularly"* (Participant 4).

Nausea, vomiting, and loss of appetite are also upsetting factors reported by participants especially in the first few days following the dose of chemotherapy.

A 15-year-old female said:

*"For me, the worst thing in cancer is chemotherapy...because it has many complications...The first time I took a dose of chemotherapy I became nauseated and vomited a lot and I felt tired. Also, I have no appetite for food; I disliked the smell of food...I remained three days only on intravenous fluid; this is because I have been*

vomiting everything, even the water...It is very disgusting feeling" (Participant 5).

Participants discussed some complications associated with vomiting such as stomachache, urine incontinence, and loss of appetite. Therefore, they described chemotherapy as being absolutely the worst medication. One participant reported:

*"My body became very tired because of frequent vomiting...nurses gave me medication to stop vomiting, but without any benefit...most of the time I suffer from pain in the stomach due to excessive vomiting...sometimes I feel that my soul get out of my mouth with each vomiting, and sometimes I cannot control my urination. Also, I lost my appetite for food and therefore I lost many kilograms of my weight...chemotherapy is very bad...It is the worst drug on earth"* (Participant 11).

Participants in this study were aware of the effect that chemotherapy has on the immune system. They reported that chemotherapy could cause suppression of the immune system leading for getting infection easily. Participants also reported that they learned this information from health care providers as well as from family members.

*"I usually become infected with many diseases due to chemotherapy such as colds and herpes. Doctors and nurses told me that chemotherapy reduces the ability of my immune system to resist disease, so I must be careful about my health in order not to catch infection from others"* (Participant 10).

Participants reported that they must remain isolated from others during the period of immunosuppression. A 17-year-old patient said:

*"Immunity affects our relationship with others...For example, when my immunity is low, my parents and nurses prevent me to see my friends and visitors"* (Participant 6).

#### **Appearance changes**

Altered body image was an important point highlighted by participants in this study. Participants reported many physical changes resulting from chemotherapy. Hair loss was frequently mentioned by participants as a distressing sign that induces feelings of sickness and embarrassment. A female participant said:

*"My hair began to fall gradually until I have nothing...It's a sign of cancer. I felt shamed because of my appearance"* (Participant 2).

Weight changes, mouth sores, pale color, sunken eyes, and discoloration below eyes are also physical changes that regarded by participants as distressing changes. These changes have impacted negatively on their quality of lives and their relationship with others. Participants felt more delicate and different from peers because of these changes. The following quotation represents a participant's view:

*"I faced many complications as a result of chemotherapy, my color was changed a lot and became pale, I lost my appetite and therefore I lost my weight. Most often I feel like a ghost and quite different from others"* (Participant 12).

#### **Theme 2: Emotional-related stressors**

This theme was clearly acknowledged throughout all interviews. Participants revealed their emotional suffering caused by cancer and chemotherapy. This theme was classified into two subthemes: developing uncertainty and psychosocial deterioration.

##### **Developing uncertainty**

Uncertainty is one of the issues that was clearly raised by participants in this study. Participants discussed many concerns about the future such as, worries about their academic progress, worries about occupational future, and worries about marital status. A 17-year-old female said:

*"I'm greatly worried about my future, I mean...I don't know if I will fully cure from cancer and consequently if I could complete my education or find a job?"* (Participant 14).

Fear of unknown and fear of getting worse are also other feelings expressed by participants. One participant said:

*"In fact, I'm scared about my condition to be worse...I'm scared about my future and what it holds to me"* (Participant 1).

##### **Psychosocial deterioration**

Participants in this study experienced feeling of depression, sadness, mood changes, boredom, and anxiety. Cancer has been described by participants as one of the most distressing diseases that causes emotional pain for patients and their families. One participant reported:

*"When they told me about my disease and that I will be treated using chemotherapy, I was very sad and depressed because I know what cancer is...a fatal disease that will destroy the body...sometimes I cry and sometimes I become very nervous and anxious"* (Participant 14).

Physiological and appearance changes make participants feel embarrassed and therefore they prefer to less interact with others.

*"My relationship with my friends and relatives has changed, I don't like to see them or sit with them for a long time, especially with these changes that happened to me. Usually I feel tired and I want to vomit...I don't like my friends to see me like this"* (Participant 5).

#### **Theme 3: Treatment-related stressors**

This theme represents distress associated with the strenuous requirements of chemotherapy administration. Participants showed their suffering with the lengthy and demanding treatment. Two

subthemes were emanated from this theme: overwhelming therapy and changing habits.

#### **Overwhelming therapy**

Participants in this study reported their dissatisfaction with the requirements of treatment. They were very upset with being committed to the dates of scheduled treatment which restricted their freedom. One participant reported:

*"I always feel as being restrained... like a prisoner...I must be committed to the treatment schedules...every month I have a dose of chemotherapy followed by intravenous fluid for three days"* (Participant 2).

Being on regular blood tests and intravenous lines are also requirements of treatment that induced stress among some participants. They disliked the painful cannulation and venous punctures for blood sampling. In addition, two participants in this study complaining of being connected with feeding tubes. These painful procedures lead some participants to hate hospitalization and receiving treatment as they described the hospital as a place of torture. One participant said:

*"Whilst hospital is considered by people as a place for becoming well and cure, I think the contrary of that...it's a place of torture. Every time, I have to do blood sampling, injections, drip...it's really a bad place"* (Participant 12).

#### **Changing habits**

Because of the effects of cancer and the overwhelming treatment, participants in this study revealed that their habits and daily activities have been changed a lot. For example, they regularly miss school, friendship, and entertainment activities due to the treatment protocol and isolation imposed on them during the time of immunosuppression. One participant said:

*"Each month I do not go to school for a week to receive chemotherapy, and sometimes, I go to the hospital if I have low immunity... I miss my friends and I hope to go outside to play football as before"* (Participant 11).

#### **Theme 4: Enhancing normality**

Data analysis revealed a variety of factors that helped participants to live with such overwhelming and devastating disease. These factors were reflected by three subthemes: social support, religion, and coping strategies.

#### **Social support**

Getting support from family members, friends, and health professionals was acknowledged by adolescents as a very helpful approach that allowed them to challenge their illness and to continue their treatment journey. Participants described the support and caring provided to them by their families, friends,

and medical staff. The following excerpts convey some of participant's perspectives:

*"My father comes everyday from his work to play with me"* (Participant 2).

*"My friends visit me and tell me about the lessons that I missed, they are very supportive"* (Participant 1).

*"Doctors and nurses are very kind and cooperative, they teach us about cancer and chemotherapy, and give us medication to decrease our pain"* (Participant 2).

Dealing with patients in a normal way was another form of social support provided to adolescents. They preferred to be treated in a normal way which enhanced their feelings of normality and thus moving forward with strength and hope in cure.

#### **Religion**

Religion was regarded as an influential factor that motivated adolescents to go through their lives with more satisfied feelings. Participants declared that they trusted and believed in God; therefore, they regularly pray and recite the Holy Qur'an to feel better and in good condition. This was illustrated by the following quotes:

*"I have a great sense of my God...he could help me"* (Participant 15)

*"I always pray and recite Qur'an...these things make me feel strong to accept my disease"* (Participant 11).

#### **Coping strategies**

This subtheme represents techniques developed by participants to cope with the stressors associated with their illness. Adolescents were insisted on enhancing their appearance using some measures to conceal the undesirable physical changes. For example, most adolescents dealt with hair loss using hats, wigs, and scarves. Also, facial mask was acknowledged as an effective method for concealing mouth sores. One participant reported:

*"When my hair started to fall down, I bought a wig to wear it when going outside home and when people visit us"* (Participant 10).

Another Participant who have mouth sores said:

*"These sores on my mouth are very painful and bothersome, whenever they appear I wear a mask because they are very disgusting"* (Participant 9).

Hope and believe in recovery were other coping strategies adopted by adolescents. Many adolescents believed that they will return to their normal status after receiving treatment. They hoped to get a better life and to complete their education and get a job in the future. One participant said:

*"I believe I will become better and I will go back to my normal life"* (Participant 2).

Another participant said:

"I hope to complete my education and get a high score to study at the university" (Participant 3).

On the other hand, some participants considered avoidance of people as a way to cope with their

suffering with cancer. Adolescents disliked others to treat them differently.

"I try to avoid seeing my friends, I feel I am a different person, and I feel they treat me in a different way" (Participant 12).

**Table 1:** Thematic map

<b>First Theme:</b> "Physical-related stressors"	<b>Second Theme:</b> "Emotional-related stressors"	<b>Third Theme:</b> "Treatment-related stressors"	<b>Forth Theme:</b> "Enhancing normality"
<p><b>Physiological changes</b></p> <ul style="list-style-type: none"> <li>• Lack of energy</li> <li>• Fatigue and weakness</li> <li>• Nausea</li> <li>• Vomiting</li> <li>• Pain</li> <li>• Loss of appetite</li> <li>• Infection</li> <li>• Immunosuppression</li> </ul> <p><b>Appearance changes</b></p> <ul style="list-style-type: none"> <li>• Hair loss</li> <li>• Weight changes</li> <li>• Mouth sores</li> <li>• Pale color</li> <li>• Sunken eyes</li> <li>• Discoloration below eyes</li> </ul>	<p><b>Developing uncertainty</b></p> <ul style="list-style-type: none"> <li>• Fear of unknown</li> <li>• Fear of getting worse</li> <li>• Worries about academic progress</li> <li>• Worries about occupational future</li> <li>• Worries about marital status</li> </ul> <p><b>Psychosocial deterioration</b></p> <ul style="list-style-type: none"> <li>• Depression</li> <li>• Sadness</li> <li>• Mood changes</li> <li>• Embarrassment</li> <li>• Isolation</li> <li>• Boredom</li> <li>• Anxiety</li> </ul>	<p><b>Overwhelming therapy</b></p> <ul style="list-style-type: none"> <li>• Being committed to the dates of scheduled treatment</li> <li>• Being on regular blood tests, intravenous lines and feeding tubes</li> </ul> <p><b>Changing habits</b></p> <ul style="list-style-type: none"> <li>• Missing school</li> <li>• Missing entertainment activities</li> <li>• Missing friendship</li> </ul>	<p><b>Social support</b></p> <ul style="list-style-type: none"> <li>• Support from family, friends, and health professionals</li> <li>• Dealing with patients in a normal way</li> </ul> <p><b>Religion</b></p> <ul style="list-style-type: none"> <li>• Praying</li> <li>• Reciting Qur'an</li> <li>• Faith and reliance on God</li> </ul> <p><b>Coping strategies</b></p> <ul style="list-style-type: none"> <li>• Using measures to conceal physical changes</li> <li>• Hope and believe in recovery</li> <li>• Avoidance</li> </ul>

#### 4. Discussion

Cancer is a distressing life experience for patients. This study explored distressing factors experienced by Jordanian adolescents with cancer who were undergoing chemotherapy. Participants extensively spoke about their painful and stressful experience with cancer and chemotherapy. They revealed three major themes related to distress: "Physical-related stressors", "Emotional-related stressors", and "Treatment-related stressors".

Consistent with previous studies of **Hedstrom et al. (2004)**; **Hedstrom et al. (2005)**; **Cicogna et al. (2010)**, physiological changes such as lack of energy, fatigue, nausea, vomiting, pain, loss of appetite and immunosuppression were cited by adolescents as distressing and bothersome factors that affected their

daily activities and contributed to poor quality of life. In addition, changed appearance due to cancer and chemotherapy was considered by adolescents as a very stressful situation that deteriorated their body integrity and wholeness. Conforming to the findings of **Abu Shosha et al. (2013)**, hair loss, weight changes, mouth sores, pale color, and discoloration below eyes were frequently described by Jordanian adolescents as upsetting changes.

In this study, uncertainty was considered to be a major source of emotional distress among Jordanian adolescents. They expressed their worries about their future such as academic progress, occupational future and marital status. **Sundberg et al. (2008)** and **Enskar and Bertero (2010)** also found that survivors of childhood cancer showed difficulties to find and

establish romantic relationships. Jordanian adolescents also revealed their fear of unknown and fear of becoming worse. This fear may be raised from their awareness of the chronic nature of cancer, its prolonged treatment and its probability to reappear. Previous studies have shown similar sources of distress resulting from uncertainty, worries and fears (**Hedstrom et al., 2005; McCaffrey, 2006**). **Parry (2003)** described uncertainty as a phenomenon that induces emotional distress in childhood cancer survivors. However, uncertainty also could be the catalyst for positive outlook of life, for the growth of personal identity, and for creating inner strength and spirituality. Therefore, it is important for nurses to assess adolescents' perception of stressors and the negative and positive consequences of these stressors.

In this study, psychosocial deterioration was evident throughout cancer experience. The strenuous requirements and effects of cancer treatment provoked feelings of depression, sadness, mood changes, embarrassment and anxiety which lead participants to prefer social isolation. In addition, adolescents complained of the overwhelming therapy which imposed on them to be committed to chemotherapy protocols as well as regular blood tests, intravenous lines and feeding tubes. These requirements restricted their daily activities such as school attendance and going with friends for entertainment.

Whilst cancer and chemotherapy were cited by Jordanian adolescents as a stressful situation, they established many strategies to accommodate with the negative consequences of cancer. Support from family, friends, and health professionals was acknowledged as an effective strategy to cope with the burden of the disease. It was considered as a vital issue that helped adolescents to reintegrate in the social life. Caring, accepting, visiting, and teaching patients about their disease were strongly valued by participants. Previous researchers asserted on the importance of social support as a major factor that helps adolescents to embrace changes associated with cancer (**Hokkanen et al., 2004; Shama & Lucchetta, 2007; Ramini et al., 2008; Stegenga & Ward-Smith, 2009; Abu Shosha et al., 2013**). Indeed, nurses play a key role in encouraging social support as it is proven that getting support from friends, family, and health care providers is associated with less depression and anxiety (**Corey et al., 2008**). It was very important for Jordanian adolescents with cancer to live a normal life like their peers and not being distinct from them. Therefore, they preferred people to deal with them in a normal manner. Previous studies have also demonstrated the meaning of keeping normality with cancer patients (**Larouche & Chin-Peuckert, 2006; Grinyer, 2007; Wallace et al., 2007; Williamson et al., 2010; Abu Shosha et al., 2013**).

Faith in God was evident in this study; adolescents demonstrated their dependence and reliance on God as they believed that God is the most merciful. Therefore, they practiced religious rituals such as praying and reciting the Holy Qur'an which helped them to be patient and to endure the hardships. Nurses and others who are involved in cancer treatment are encouraged to meet the spiritual needs of those patients and to encourage positive thoughts about praying and other religious rituals. Same findings were confirmed in studies conducted by **Kyngas et al. (2001) and Hendricks-Ferguson (2008)** who asserted that faith in God and religion are helpful strategies used by adolescents to cope with cancer.

In addition, adolescents in this study developed their own strategies to cope with the noticeable changes in their appearance. For example, most male participants reported using hats to deal with hair loss while female patients used scarves and wigs. Participants with mouth lesions reported using facial mask. Previous studies revealed the using of same objects to embrace changes in physical appearance (**Larouche and Chin-Peuckert, 2006; Abu Shosha et al., 2013**).

In spite of the stressors connected with cancer and chemotherapy, Jordanian adolescents were hopeful about the future; they strongly believed that they will back normal after completing their therapy. These findings are congruent with studies by **Kyngas et al. (2001) and Wu et al. (2009)** who found that adolescents with cancer had positive attitude towards life, believed in their abilities, ready to fight disease and restore normal life. **Haase and Phillips (2004)** alleged that hope is an essential factor to help adolescents in creating positive meaning of their experience. In fact, these findings suggest that most adolescents are capable of continuing their life along with the disease that causes deterioration in their daily living activities. In this study, some participants chose to avoid people as a good strategy to forget their disease. Avoidance of social interaction was also cited by previous findings as a coping mechanism used by adolescents with cancer (**Larouche & Chin-Peuckert, 2006; McCaffrey, 2006; Williamson et al., 2010**).

## 5. Conclusion and clinical implication

This study illuminates the experience of Jordanian adolescents with cancer and chemotherapy. Adolescents revealed that cancer has a harmful impact on adolescents' physical, emotional, and psychosocial lives. They showed their suffering with the overwhelming therapy that required a restricted protocol. Adolescents described the physiological changes associated with cancer and chemotherapy which evoked many psychosocial stressors.

Uncertainty and worries about future were also major issues emerged in this study. However, adolescents could cope with their distressing experience using many strategies. Adolescents need others to listen to their experience with cancer. Nurses should give the opportunity for adolescents to express their own feelings and concerns about the effects of cancer on their lives. Nurses also should continuously assess adolescents' psychological and spiritual status associated with cancer treatment. Nurses are recommended to teach families, teachers, and friends how to deal with adolescent cancer patients in a normal way. Replication of this study in Jordan is needed to better comprehend this distressing experience. In addition, conducting interviews based on focus groups might be a privilege for adolescents to share knowledge and extracting additional aspects when interaction is stimulated between them.

#### 6. Study limitations

The main limitation of this study is the generalizability of the findings. However, the researcher interviewed hand-picking participants who lived the experience of cancer and provided exhaustive and in-depth description of the findings.

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