

## Impact of Cancer Version 2 (IOCv2) Scoring Instructions

The Impact of Cancer Version 2 (IOCv2) is a psychometric scale designed to assess quality of life and other aspects of long-term cancer survivorship. The development of the IOCv2 is described in Crespi et al. (2008). The IOCv2 is a refinement of the original Impact of Cancer (IOC) scale, described by Zebrack and colleagues (2006, 2008).

These instructions describe how the IOCv2 can be scored based on responses from either the original 81-item IOC questionnaire or the shorter IOCv2 instrument. The IOCv2 consists of two higher-order scales, a Positive Impact Scale and a Negative Impact Scale, each with four subscales:

- Positive Impact Scale
  - Altruism and Empathy Subscale
  - Health Awareness Subscale
  - Meaning of Cancer Subscale
  - Positive Self-Evaluation Subscale
- Negative Impact Scale
  - Appearance Concerns Subscale
  - Body Change Concerns Subscale
  - Life Interferences Subscale
  - Worry Subscale,

and three additional subscales measuring employment and relationship impacts:

- Employment Concerns
- Relationship Concerns (Partnered)
- Relationship Concerns (Not Partnered)

Applicability of the last three subscales is determined by responses to screening questions. The other scales and subscales are designed to be applicable to all long-term survivors.

The scales and subscales of the IOCv2 are scored using responses to 47 questionnaire items and three screening questions (items 38, 46 and 47). The items were selected from a longer 81-item questionnaire, described in Zebrack et al. (2006, 2008), based on psychometric evaluation described in Crespi et al. (2008). A respondent indicates his or her agreement with each applicable item on a 5-point scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. Each subscale score is computed as the mean of the responses for the items comprising the subscale. Each higher-order scale score is similarly computed as the mean of the responses for the items comprising that scale. In order to score any subscale or scale, at least half of the items comprising the subscale/scale should be non-missing; otherwise the subscale/scale should be scored as missing. A higher score on a subscale/scale implies stronger endorsement of that content area.

Items 42 and 43 in IOCv2 must be reverse-coded before computing the subscales/scales. To reverse-code, subtract the numeric value of the response from 6 to get the new value, i.e., new value = 6 – old value.

## References

Crespi CM, Ganz PA, Petersen L, Castillo A, Caan B. Refinement and psychometric evaluation of the Impact of Cancer scale. *Journal of the National Cancer Institute* 2008; 100(21):1530-1541.

Zebrack BJ, Ganz PA, Bernaards CA, Petersen L, Abraham L. 2006 Assessing the Impact of Cancer: development of a new instrument for long-term survivors. *Psycho-Oncology* 2006; 15(5): 407-421.

Zebrack BJ, Yi J, Petersen L, Ganz PA. The impact of cancer and quality of life for long-term survivors. *Psycho-Oncology* 2008; 17(3):S30-S31.

<b>Scale/subscale</b>	<b>If administering the 47-item IOCV2 questionnaire, compute the mean of items:</b>	<b>If administering the original 81-item IOC questionnaire, compute the mean of items:</b>
Positive Impact Scale	01, 02, 03, 04, 05, 06, 07, 08, 22, 23, 24, 25, 33, 34, 35, 36, 37	15, 16, 17, 29, 32, 33, 34, 37, 53, 54, 55, 56, 58, 62, 63, 64, 65
Altruism and Empathy Subscale	22, 23, 24, 25	62, 63, 64, 65
Health Awareness Subscale	01, 02, 03, 04	15, 16, 17, 29
Meaning of Cancer Subscale	33, 34, 35, 36, 37	53, 54, 55, 56, 58
Positive Self-Evaluation Subscale	05, 06, 07, 08	32, 33, 34, 37
Negative Impact Scale	09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31, 32	08, 09, 12, 19, 21, 22, 23, 24, 25, 26, 27, 28, 39, 40, 57, 67, 68, 70, 72, 73
Appearance Concerns Subscale	19, 20, 21	26, 27, 28
Body Change Concerns Subscale	16, 17, 18	24, 25, 39
Life Interferences Subscale	26, 27, 28, 29, 30, 31, 32	40, 57, 67, 68, 70, 72, 73
Worry Subscale	09, 10, 11, 12, 13, 14, 15	08, 09, 12, 19, 21, 22, 23
Employment Concerns	48, 49, 50	01, 02, 03
Relationship Concerns (Not Partnered)	39, 40, 41	74, 75, 77
Relationship Concerns (Partnered)	42*, 43*, 44, 45	78*, 79*, 80, 81

*\*Reverse-code these items (new value = 6 – old value) before computing the mean*

## IOCV2 Item Descriptions

Note: This list does not include the employment and relationship screening questions (IOCV2 items 38, 46 and 47).

Item number in 47-item IOCV2 questionnaire	Item number in 81-item IOC questionnaire	Item description
01	15	I do not take my body for granted since the cancer
02	16	Having had cancer has made me more concerned about my health
03	17	I am more aware of physical problems or changes in my body since having had cancer
04	29	Having had cancer has made me take better care of myself (my health)
05	32	I consider myself to be a cancer survivor
06	33	I feel a sense of pride or accomplishment from surviving cancer
07	34	I learned something about myself because of having had cancer
08	37	I feel that I am a role model to other people with cancer
09	08	Having had cancer makes me feel unsure about my future
10	12	I feel like time in my life is running out
11	21	I worry about the cancer coming back or about getting another cancer
12	23	Having had cancer makes me feel uncertain about my health
13	09	I worry about my future
14	22	New symptoms (aches, pains, getting sick or the flu) make me worry about the cancer coming back
15	19	I worry about my health
16	24	I am concerned that my energy has not returned to what it was before I had cancer
17	25	I am bothered that my body cannot do what it could before having had cancer
18	39	Having had cancer has made me feel old
19	26	I worry about how my body looks
20	27	I feel disfigured
21	28	I sometimes wear clothing to cover up parts of my body I don't want others to see
22	62	I feel a special bond with people with cancer
23	63	Because I had cancer I am more understanding of what other people may feel when they are seriously ill
24	64	Having had cancer has made me more willing to help others
25	65	I feel that I should give something back to others because I survived cancer
26	40	I feel guilty today for not having been available to my family when I had cancer

27	57	I feel like cancer runs my life
28	67	Having had cancer has made me feel alone
29	68	Having had cancer has made me feel like some people (friends, family, co-workers) do not understand me
30	70	Uncertainty about my future affects my decisions to make plans (examples: work, recreation/travel, get married, get involved in relationships, have a family, go to school)
31	72	Having had cancer keeps me from doing activities I enjoy (examples: travel, socializing, recreation, time with family)
32	73	On-going cancer-related or treatment-related symptoms (for example, bladder or bowel control, lymphedema, hair loss, scars, infertility, premature menopause, lack of energy, impotence/sexual problems, aches, pain or physical discomfort) interfere with my life
33	53	Having had cancer turned into a reason to make changes in my life
34	54	Because of cancer I have become better about expressing what I want
35	55	Because of cancer I have more confidence in myself
36	56	Having had cancer has given me direction in life
37	58	Because of having had cancer I feel that I have more control of my life
39	74	Uncertainties about my health or my future have made me delay getting married or getting involved in a serious relationship
40	75	I wonder how to tell a potential spouse, partner, boyfriend or girlfriend that I have had cancer
41	77	I worry about not having a spouse, partner, boyfriend or girlfriend
42	78	I am open and willing to discuss my cancer with my spouse/partner
43	79	My spouse/partner is open and willing to discuss my cancer with me
44	80	Uncertainty about my health has created problems in my relationship with my spouse/partner
45	81	I worry about my spouse/partner leaving me if I were to become ill again
48	01	I am concerned about not being able to work if I become ill again
49	02	Concerns about losing health insurance keep me in the job I have now
50	03	I worry about being forced to retire or quit work before I am ready