Knowledge about risk factors for cancer and cancer risk behavior among patients with severe mental illness

Luigi Grassi,[1,] Rosangela Caruso,[1] Bruno Biancosino,[2] Martino Belvederi Murri,[1] Michelle Riba, [3] Elena Meggiolaro,[4] Federica Ruffilli, [4] Laura Palagini [1] Maria Giulia Nanni,[1] Sara Zavatta,[1] Tommaso Toffanin,[1] Luigi Zerbinati [1,]

1. Institute of Psychiatry, Department of Neuroscience and Rehabilitation, University of Ferrara, Ferrara, Italy
2. Integrated Department of Mental Health and Pathological Addictions, Local Health Trust, Ferrara, Italy
3. Department of Psychiatry, University of Michigan and University of Michigan Rogel Cancer Center
4. Psycho-Oncology Unit, IRCCS Istituto Romagnolo per lo Studio dei Tumori (IRST) "Dino Amadori", Meldola, Italy

Corresponding author

Luigi Grassi. M.D. MPhil
Institute of Psychiatry University of Ferrara
Department of Neuroscience and Rehabilitation
Via Fossato di Mortara 64a
44121 Ferrara, Italy
Tel +39 0532 455813 Fax +39 0532 212240
e-mail: luigi.grassi@unife.it

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ABSTRACT

Objective: To examine knowledge about, perception of and current risk factors for cancer, among patients with severe mental illness (SMI) and to compare these variables with patients without SMI.

Methods: A series of patients affected by SMI (i.e., schizophrenia spectrum disorders, bipolar disorders and severe personality disorders) and a matched (gender, age) control group of primary care attenders were assessed, by using an ad hoc semi-structured interview and a short true/false 17-item questionnaire, about family history of cancer, cancer risk-related lifestyles, personal perception and knowledge of risk for cancer.

Results: Patients with SMI (n=185, mainly schizophrenia spectrum disorders, 48%, and mood disorders, 33%) significantly differed from primary care attenders (n=173) for: lower participation to occult stool blood screening test, Pap smear test and mammography; higher prevalence of current and past smoking habits; lower awareness towards their own physical symptoms and their perception of risks for cancer; lower physical exercise practicing; lower knowledge about risk factors for cancer (e.g. familiarity for cancer, smoke-habits, breast and uterine cancer).

Conclusions: Patients suffering from SMI had higher at-risk behavior for cancer and showed fewer concerns and less knowledge about risk for cancer than primary care attendees. These findings can guide to implement screening for cancer (e.g., Pap test, blood) and to design evidence- based interventions to reduce cancer risk (e.g., educational and behavioral change for smoking cessation, dietary habits) among patients with SMI.

KEY WORDS: severe mental illness, cancer, oncology, psycho-oncology, mental health, cancer risk factors, cancer at-risk behavior

Running head short title: Knowledge and at-risk behaviour for cancer in mental disorders

1.INTRODUCTION

The problem of cancer onset and course in patients with severe mental illness (SMI) (mainly schizophrenia and severe mood disorders), although long undervalued, has been the object of recent research, given the high prevalence of SMI worldwide.[12] The incidence of cancer seems in fact to be higher amongst people with SMI compared to the general population, even if the data are in part contradictory, while the mortality rates for cancer is ascertained to be higher. Data from the literature underlines disparities in screening (e.g. mammography; pap-smear test; colorectal cancer screening) and prevention (e.g. clinical breast examination; smoking cessation) in patients with SMI,[34] and poorer cancer treatment, in turn related to higher mortality.[5]

To our knowledge, however, no study has examined the risk factors for cancer and the knowledge of these factors in people with SMI in comparison with patients without SMI. The aim of the present report is to explore these issues, within a general health campaign aimed at increasing sensitivity about cancer in the population and to develop preventive educational programs.

2. METHODS

The study was carried out in the Integrated Department of Mental Health and Pathological Addiction (IDMHPA), NHS Local Health Trust and University of Ferrara, Northern Italy within a program of examining risk factors for cancer in patients affected by any disease as a preliminary phase of a public campaign dedicated to this vulnerable segment of the population. The sample consisted of patients affected by SMI followed by IDMHPA clinical services (i.e., Outpatient Psychiatric Services, Inpatient Psychiatric Rehabilitation Units, and Day-Hospital Centers) during a six-month period. Inclusion criteria were an age between 18 and 75 years, ability to complete and understand self-administered questionnaires, and absence of an acute psychiatric disorder. A control group matched for age and sex, and with no past and current psychiatric disorders, was recruited in outpatient health care community services in cooperation between the Consultation-Liaison Psychiatric Program of the IDMHPA and Primary Care Unit, NHS Local Health Trust. Since the study was part of an evaluation regarding cancer risk in the population, ethical approval was operationalized by having each participant signing the information consent in agreement with the ethical regulations of the Committee for the Protection of Persons as adopted by the Local Health Trust and the University of Ferrara. The project was fully described to each participant in both groups and after receiving informed consent a semi structured interview and a specific questionnaire were administered by residents, nurses and general practitioners (GPs).

Procedure

By following the methodology of our previous studies of patients with SMI and knowledge about risk for HIV infection,[6,7] we developed a short questionnaire, the Knowledge of Cancer Risk Factors (KCRF). The content of the items investigating the subjects' knowledge about behavioral risks for cancer, was discussed within the Oncology and Psycho-Oncology teams. The KCRF, consisting of 17 yes/no (true/false) items were administered to each participant. A semi-structured interview was then conducted and the following domains examined: medical history, investigating the subjects' medical history (e.g. lung, gastrointestinal, genitourinary diseases); history of cancer in the family; physiological and/or medical factors related to cancer incidence (e.g. menopause, maternity and breastfeeding, oral contraceptives); life style and risk behavior (i.e. smoking habit, number of cigarettes, smoke exposure, cups of coffee per day, alcohol habits and glasses of wine per day, and diet); adherence to screening programs for cancer (e.g. Pap-smear test, breast cancer screening); attention to and recognition of physical symptoms and individual perception of cancer risk factors.

Statistical analysis

All analyses were conducted by using SPSS 16.0. Descriptive data of the population, χ^2 test to explore the difference in the frequency of responses and Student t—test and ANOVA to examine the difference in mean scores, were used. Pearson correlation test was also employed as appropriate. Statistical significance was set at $p < 0.05$.

3. RESULTS

Socio-demographic variables

One-hundred and eighty-five patients with SMI (80 men, 43.2%; 105 women, 56.8%) (mean age of 46.6 ±16.1 years) participated in the study. Psychiatric diagnoses were represented by schizophrenia and schizophrenic spectrum disorders (i.e., schizophrenia, schizophreniform disorders, schizoaffective disorders) (n=87, 48%), chronic depressive disorders (n= 34, 19.1%), bipolar disorder (n=26, 14.6%), severe personality disorder (n= 23, 12.9%). The control group consisted of 173 subjects (82 men, 47.4%; 91 women, 52.6%) (mean age 47.8 ± 12.6 years) attending primary care practices. No difference was found in gender (χ^2 =0.623; p=0.24) and age (t=0.831; p=0.41) between the groups. In comparison with controls, a higher proportion of patients with SMI were less educated (≤ 8 years=basic and middle school vs ≥ 9 years= high school and university; χ^2= 15.8, p<0.01), were

single or separated/divorced (χ^2= 48.9, p<0.01), lived alone or in the original family (χ^2= 84.7, p<0.01), and were unemployed or retired (χ^2= 71.7, p<0.01).

Knowledge about risk factors for cancer

The analysis of the differences in the percentage of the correct or wrong responses are presented in Table 1. Patients with SMI were more likely to give incorrect answers than controls to several items of the KCRF, such as those investigating familiarity for cancer, smoke-habits, breast and uterine cancer. By computing a total score on the KCRF (score = 1 to every right answer; score = 0 to every wrong answer), patients with SMI showed lower scores than controls (12.98±2.1. vs 14.11±2.12; F= 27.3, p< 0.01). Among people with SMI, no significant differences were found on the KCRF total score according to gender (F=0.14, p = ns) and diagnosis (F=0.915, p=ns), while higher scores were found among highest educated patients (education ≤8 years = 12.42±2.14; ≥9 years = 13.61±1.71, F=16.7, p<0.01). No difference according to gender and education was found among controls. Age was slightly related (higher scores in younger people) to the KCRF score among controls (r=-.17, p<0.05), but not patients with SMI (r=-0-1, p=0.14).

PLEASE TABLE 1 ABOUT HERE

Risk factors for cancer

Familiarity for cancer was high in both groups (patients with SMI n=113, 61.1%; control group n=124, 71.7%), although significantly higher among controls (χ^2= 4,48 p=0.022). No difference was found regarding cancer type (i.e., gastrointestinal, breast, lung) (Supplement Table 1).

Regarding the medical history there were small differences between groups with a higher prevalence of physical disorders (gastrointestinal and dysmetabolic disorders) among patients with SMI (Supplement Table 1).

Occult stool blood screening test was lower among patients with SMI over 50 (n=22, 29.7%) in comparison with primary care attenders (n=43, 59.7%; χ^2=14.27, p<0.01).

Regarding screening for breast cancer, a higher proportion of patients with SMI had at least one mammogram (χ^2=5.6; p=0.013), but a lower proportion receive it on a regular basis (χ^2=6.86, p=0.03). No difference between groups were reported regarding screening for uterine cancer (Pap-smear test) (χ^2=0.67, p=0.3), whereas regular Pap test was less frequent among patients with SMI (χ^2=5.03, p=0.08).

Regarding lifestyles related to cancer risk, higher percentages of patients with SMI reported to currently smoke (n=103, 55.7% vs n= 42, 24.3%; χ^2=36.57, p<0.01) or to have been smokers in the past (n=127, 68.6% vs n=94, 54.7%; χ^2=7.40, p<0.01), including being heavy smokers and being in contact with people who smoked. Alcohol use was reported to be less frequent in patients with SMI (n=86, 47% vs n=109, 63%; χ^2=9.20, p<0.01).

Most of the subjects from both groups frequently reported burns secondary to sun exposure, with patients with SMI being sunburned more frequently (n=33, 28.7% vs n=23, 18.1% χ^2=3.80, p=0.03) and less using sun protection (n=78, 42.2% vs n=44, 25.6%; χ^2=10.89, p<0.01).

Only 18.9% patients with SMI (n=35) practiced physical exercise (vs n=60, 34.7%; χ^2=11.39, p<0.01).

Risk perception

The patients' awareness towards their own physical symptoms and the perception of risk for cancer was significantly lower among patients with SMI, particularly with respect to dermatological prevention, ability to adapt diet to new health conditions and a lower sensitivity towards health issues amongst women, such as the presence of a breast lump or a blood vaginal discharge (Table 2).

PLEASE TABLE 2 ABOUT HERE

4. DISCUSSION

In this study we examined the knowledge of risk factors for cancer and the possible conditions making people at a higher risk for developing cancer among patients with SMI and primary care attendees without SMI.

A first finding, confirming our previous results about the knowledge of risk factors for HIV infection,[6,7] was that patient with SMI showed scores and frequency of correct responses about cancer lower than patients without SMI attending primary care. This suggests the need to more actively educate patients with mental illness to behaviors that expose them to the risk for developing cancer in order to be more aware of that and take proper precautions. Interesting models of programs regarding a stronger link between oncology and mental health services have been proposed with data showing the benefit of this liaison in helping patients with SMI.[8,9]

A second result is that patients with SMI were actually more exposed to several factors related to the risk for cancer. In comparison with primary care attendees, patients with SMI were more likely to be smokers, to smoke a higher number of cigarettes per day (over 10 cigarettes), and to be more

exposed to passive smoking. Other important risk factors were poorer physical exercise and a less likely use of sun creams during sun exposure which caused a higher frequency of burns. Also, in terms of prevention, the regular participation in screening for cancer (i.e., fecal occult blood test, mammography, Pap smear test) was significantly lower in patients with SMI, in line with literature data.[3,4] Their own perception to be at risk for cancer was low and, since our sample showed to be more socially compromised (unemployment, poorer education, living alone), the need for the health care system to take initiatives is in order.

Study limitations

The study has several limitations. First, patients with SMI had a lower level of education and this can have influenced the correctness of the responses to the KCRF questionnaire. Furthermore, the KCRF was developed by considering the most known causes of cancer, but it did not undergo validity and reliability analysis. A second limitation is that sampling was not randomized and we did not examine the clinical severity of psychiatric symptoms (e.g., by using the Brief Psychiatric Rating Scale) and cognitive abilities that could have been correlated with knowledge and perception of risk factors for cancer on the basis of psychopathological conditions (e.g., denial, thought disorders, cognitive impairment). Also, the data (such as how often people were sunburned or use of sunscreen) relied on recall. A further limitation is that the data gathered were part of a general campaign while a more specific involvement of cancer prevention and screening health care services could have improved the quality of the study. Lastly, the fact that the study involved only one centre limits the generalizability of our results, while a nation-wide analysis would have given not only a larger sample, but also information about possible difference among Italian regions.

Clinical Implications

The clinical implications of the study regard the need to develop and regularly apply psychoeducation programs on cancer risk and cancer-related behaviour for patients with SMI, as a vulnerable and fragile segment of the population that, for several reasons are marginalized and socially disadvantaged. For example, it is common experience that in psychiatric settings antismoking campaigns are not part of usual clinical care and, on the contrary, patients are often allowed to smoke when admitted in psychiatric inpatient units. Physical health of patients with SMI has been only recently considered part of the World Health Organization recommendations that underscore the absolute need for equitable access to comprehensive health services by addressing the disparities in health care provision for people with SMI and following the principle of non-discrimination and universal health coverage.[10] Also it should be underlined that making people aware of the most

important risk factors for cancer is not enough to change their behaviour, but it certainly would offer them an opportunity for reflection and help them to take more conscious and free decisions about their own health, according to a person-centered approach.[11] The problems of stigma and discrimination, poorer health behavior, lack of integration in health-care services for people with SMI needs to be more actively addressed in cancer care. Therefore, it is mandatory that psycho-oncology be part of oncology and mental health departments and services and facilitate the links between these institutions.

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DATA AVAILABILITY STATEMENT. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Table 1. Knowledge of Cancer Risk Factors in patients with and without SMI (% of the true/false or yes/no responses)

Items	Pts with SMI		Primary Care attenders		χ^2	p
	YES/ True	NO/ False	YES/ True	NO / False		
1. Smoking more than 5 cigarettes is the main risk factor for developing lung cancer	69.7	30.3	80.9	19.1	5.99	0.01
2. People with a light complexion are at risk for developing skin cancer, and must use sunscreens	86.5%	13.5	93.6	6.4	5.06	0.01
3. Food rich in fibers (bran and cereals), fresh fruit and vegetables, protect from development of intestinal cancer	88.6	11.4	95.4	4.6	5.43	0.01
4.Passive smoking raises the risk of developing lung cancer	90.3	9.7	97.1	2.9	6.95	0.01
5.The likelihood of developing prostate cancer is reduced after the age of 50 years *	34.1	65.9	7.5	92.5	37.65	0.01
6.It is possible to prevent prostate cancer through blood tests and appropriate urological visits	87.6	12.4	85.9	10.5	.19	ns
7. Pap smear test is a screening test for womb cancer	91.4	8.6	94.1	5.9	.71	ns
8. The risk of developing breast cancer is reduced after the age of 50 years *	33.5	66.5	20.8	79.2	7.25	0.01
9. Alcohol abuse may favor liver cirrhosis and liver cancer	98.4	1.6	96.1	3.9	1.1	ns
10. One should undergo Pap test every 10 years because womb cancer is very rare. *	22.2	77.8	15	85	2.99	0.05
11. Women over 45 years old should get mammograms every year to early detection of possible breast cancer	81.6	18.4	87.1	12.9	1,81	ns
12. Repeated sunburns are a risk factor for skin cancer	89.7	10.3	92.6	7.4	.71	ns
13. People with a near relative (mother, sister, grandmother) who has had breast cancer, have an increased risk for developing the same kind of cancer	83.8	16.2	90.8	9.2	3.87	0.03
14. Obesity can be a risk factor for cancer	70.3	29.7	70.6	29.4	.07	ns
15. Sexual intercourses without adequate precautions (e.g., condom, intimate hygiene) are amongst the main causes of womb cancer *	58.4	41.6	44.2	55.8	7.76	0.01
16. Alcohol abuse is not one of the main risk factors for gastrointestinal cancer *	31.9	68.1	28.9	71.1	.40	ns
17. Drinking too many coffees may predispose to some cancers *	41.1	58.9	47.3	52.7	1.51	ns

* Reverse items

Table 2. Risk perception about cancer (% of the yes/no responses)

Questions	Pts with SMI		Primary Care attenders		χ^2	p
	YES	NO	YES	NO		
Do you consult a doctor if you have persistent coughing (especially if with copious sputum production)?	71.9	28.1	67.8	32.2	.77	ns
Do you worry if you notice spots on your skin or a mole which changes shape and size?	74.1	25.9	87.9	12.1	10.95	0.001
When experiencing digestion problems abdominal pain, diarrhoea or constipation, did you change your own eating habits?	71.9	28.1	85.1	14.9	6.56	0.007
Have you ever used sunscreens during sun exposure in summer?	60.9	39.1	80.2	19.8	15.94	0.000
Have you consulted a physician if you have noticed vaginal or blood discharges?	71.6	28.4	83.2	16.8	3.74	0.053
If you noticed the presence of breast nodules, would you think it would be important to consult your physician?	93.2	6.8	99	1	4.32	0.039

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When experiencing digestion problems abdominal pain, diarrhoea or constipation, did you change your own eating habits?	71.9	28.1	85.1	14.9	6.56	0.007
Have you ever used sunscreens during sun exposure in summer?	60.9	39.1	80.2	19.8	15.94	0.000
Have you consulted a physician if you have noticed vaginal or blood discharges?	71.6	28.4	83.2	16.8	3.74	0.053
If you noticed the presence of breast nodules, would you think it would be important to consult your physician?	93.2	6.8	99	1	4.32	0.039