



Working together
www.rcis.ro

Revista de cercetare și intervenție socială

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

Selected by coverage in Social Sciences Citation Index, ISI databases

SOCIO-EPIDEMIOLOGICAL POINTS OF VIEW REGARDING QUALITY OF LIFE IN PATIENTS WITH AND WITHOUT BREAST RECONSTRUCTION AFTER MASTECTOMY FOR CANCER

*Ioannis GARDIKIOTIS, Doina AZOICAI, Codrin DOBREANU, Ina PETRESCU,
Andrei LAZAR, Alina MANOLE, Nicolae GHETU*

Revista de cercetare și intervenție socială, 2016, vol. 52, pp. 92-104

The online version of this article can be found at:

www.rcis.ro, www.doaj.org and www.scopus.com

Published by:

Expert Projects Publishing House



On behalf of:

„Alexandru Ioan Cuza” University,

Department of Sociology and Social Work

and

Holt Romania Foundation

REVISTA DE CERCETARE SI INTERVENTIE SOCIALA

is indexed by ISI Thomson Reuters - Social Sciences Citation Index

(Sociology and Social Work Domains)



Working together
www.rcis.ro

Socio-Epidemiological Points of View Regarding Quality Of Life in Patients With and Without Breast Reconstruction after Mastectomy for Cancer

Ioannis GARDIKIOTIS¹, Doina AZOICAI², Codrin DOBREANU³,
Ina PETRESCU⁴, Andrei LAZAR⁵, Alina MANOLE⁶, Nicolae GHETU⁷

Abstract

The purpose of the study is to compare the quality of life (QoL) of mastectomised patients for cancer, who subsequently chose or not breast reconstruction, using the Short Form - 36 (SF-36) Health Survey. The study was carried out during October 2014 - May 2015, on two groups: 23 patients with breast reconstruction, assisted at the University Hospital of Bucharest, compared with 27 patients without reconstruction, assisted in surgical sections of hospitals from the Northern-East area of Romania. The average age of the reconstructed patients was 57.07, compared to 43.91 for those without reconstruction. We referred to the scales related on social, mental and emotional functionality of patients, comparing

¹ Grigore T. Popa University of Medicine and Pharmacy Iasi, Faculty of Medicine, Department of Preventive Medicine and Interdisciplinarity, Iasi, ROMANIA. E-mail: gardikiotis.ioannis@d.umfiasi.ro

² Grigore T. Popa University of Medicine and Pharmacy Iasi, Faculty of Medicine, Department of Preventive Medicine and Interdisciplinarity, Iasi, ROMANIA. E-mail: doina.azoicai@umfiasi.ro

³ Regional Oncology Institute, Plastic and Reconstructive Surgery Compartment, Iasi, ROMANIA. E-mail: dobreanucodrin@gmail.com

⁴ University Emergency Hospital of Bucharest, Romania, Plastic and Reconstructive Surgery Department, Bucharest, ROMANIA. E-mail: inapetrescu@yahoo.com

⁵ Grigore T. Popa University of Medicine and Pharmacy Iasi, Faculty of Medicine, Plastic Surgery Discipline, "Sfântul Spiridon" Emergency Hospital, Iasi, ROMANIA. E-mail: dr.lazar_andrei@yahoo.com

⁶ Grigore T. Popa University of Medicine and Pharmacy Iasi, Faculty of Medicine, Department of Preventive Medicine and Interdisciplinarity, Iasi, ROMANIA. E-mail: alina.manole@umfiasi.ro (corresponding author)

⁷ Grigore T. Popa University of Medicine and Pharmacy Iasi, Faculty of Medicine, Plastic Surgery Discipline. Regional Oncology Institute, Iasi, Romania, Plastic and Reconstructive Surgery Compartment, Iasi, ROMANIA. E-mail: dr.ghetu@gmail.com

the two studied groups. The correlations calculated for the scores achieved from patients at the discussed items showed a strong connection between the answers on the question if they performed less activities than having intended and the decrease of the time period of working or performing other activities due to emotional problems, both for the group of women without reconstruction ($r .768$), as well as for the breast reconstructed group ($r .740$). The scores indicating QoL were higher for the scales related to the social functionality and mental health, for the patients with reconstruction, compared to those achieved by the patients without breast reconstruction. Studies on larger groups would be useful for emphasizing the differences between the QoL of women living the same reality, the mastectomy for breast cancer and who chose breast reconstruction, compared to those who did not.

Keywords: quality of life, breast reconstruction, breast cancer, mastectomy, SF-36.

Introduction

Approximately 12.3% of women will be diagnosed with breast cancer in the following years, at a certain stage of their lives, as indicated in a prognosis issued by National Cancer Institute, USA, based on the data collected between 2009 and 2011 (National Cancer Institute). This is why it is necessary to consider the quality of life of these women who have received modern anti-cancer treatment meant to increase their survival rate. According to the *World Happiness Report* for 2015, Romania occupied the 86th position at the “state of happiness” of its citizens indicator with a score of 5.124, being situated between Zambia and Serbia (with Switzerland on the first place) (Helliwell, Layard, & Sachs, 2014). The quality of life in connection to health is, at present, considered an important objective in oncologic trials. Among the quality of life studies, breast cancer has received the most attention, for a number of reasons: first of all due to the ever increasing incidence of the disease and secondly because the diagnosis and early treatment techniques for breast cancer are currently at high standards, significantly increasing the life expectancy as compared to the previous decades. It has thus become a priority to study the quality of life in such a context (Montazeri, Gillis, & McEwen, 1996). The psychological impact of mastectomy is generated by stress and the feeling of mutilation associated to the loss of the breast, to which anxiety generated by the life-threatening prognosis might add (Boughton, 2000). The quality of life is difficult to be quantified by doctors and researchers. However, for the patients with breast cancer, it represents an important problem, so that the physician should discuss with every patient about her own perceptions of the current status of health and the difficulties she encounters during the daily

activities. Breast reconstruction is an option for the patients having had unilateral or bilateral mastectomy, or after a conservative surgical treatment but having a less accepted cosmetic result (Rowland *et al.*, 2000). The reconstruction moment can vary from case to case. It has been proved that immediate breast reconstruction does not increase the tumour relapse risk (Heneghan *et al.*, 2011; Yang, Zhu, & Gu, 2015). It is a safe and adequate method for accurately selected breast cancer patients. Some of the patients interviewed about their reasons behind undergoing breast reconstruction explained that the procedure allows them to remain discreet regarding their disease, to avoid a big shock when waking up after mastectomy and to go on with their lives as they knew them before mastectomy (McKean, Newman, & Adair, 2013). The body image is defined as a person's mental image of the physical body, his or her attitude towards the physical self, state of health, normal functionality and sexuality (Schover, 1991). Breast reconstruction is known to offer psychological, social, emotional and functional improvements to patients, such as the increase of mental health, self-esteem, sexuality and a better body image. Choosing the breast reconstruction involves, for the patient, to make some complex decisions, including the type of procedure and the moment of plastic surgery intervention (Macadam, Ho, Lennox, & Pusic, 2013). Studies focusing on the wellbeing associated to different dimensions for more and more specific pathologies prove that women who appeal to plastic surgery after mastectomy display lower levels of depression as compared to patients who do not choose this procedure (Szadowska-Szlachetka *et al.*, 2013). The results of the research on the improvement of quality of life and the psycho-social benefits related to the breast reconstruction served as a backbone for signing, on the 21st of October 1998, in the USA, the first Women's Health and Cancer Rights Act (also called Janet's Law), mandating the health insurances to cover the surgical breast reconstruction procedures after mastectomy for cancer (including the nipple reconstruction, the contralateral symmetry achievement and the treatment of the post-mastectomy sequelae). This act was followed, in 2001, by the signing of an additional legislation, providing additional sanctions for the non-compliant health insurers. However, after two decades, there is still ambiguous if signing this act contributed to changes of clinical practice and patients' choices related to reconstruction (Plastic Surgery Statistics Report, 2014). In Romania, the law from 2006 was amended only in 2014 by a Government Executive Ordinance (GEO), so that the breast reconstruction on women with cancer and mastectomy is not anymore considered just "aesthetic", but necessary, and the endoprosthesis is covered by National Health Insurance House (Avocatnet.ro). The purpose of this study is to compare the quality of life in patients with mastectomy for cancer, who subsequently chose or not breast reconstruction, using the questionnaire SF-36.

Material and methods

The study was conducted on two groups: 23 patients with reconstruction, assisted at the Bucharest University Hospital, compared to 27 patients without reconstruction, assisted in surgical sections from hospitals in the Northern-East area of Romania, during October 2014 and May 2015. The study was performed within one single visit, the method including the direct questioning of patients. The informed consent of the research attendee received the notice of the Ethics Commission of “Grigore T. Popa” University of Medicine and Pharmacy Iasi, each patient attending the study taking note of its content, on signature.

The mainly used instrument was the SF-36 Health Survey version 2.0, validated for the healthy population of Romania, within a project carried out by the Romanian Association for Public Health and Hospital Management (ARSPMS) and the Centre of Urban and Regional Sociology (CURS) of Bucharest (Mihaila, Enachescu, & Badulescu, 2001). The SF-36 Health Survey version 2.0 assesses different health matters, through 36 items, organized in 8 scales: physical functioning (PF: 10 items), bodily pain (BP: 2 items), social functioning (SF: 2 items), mental health (MH: 5 items), general health (GH: 5 items), vitality (VT: 4 items), role physical (RP: 4 items), and role emotional (RE: 3 items), health transition (HT: 1 item) (Ware & Sherbourne, 1992).

The inclusion criteria for participation in the study were: female gender, total or partial, unilateral or bilateral mastectomy carried out for the breast cancer diagnosis; the intervention of breast reconstruction (any surgical technique) or its absence. The exclusion criteria were: patients who refused to attend the study. The scores for each item, respectively scale, were calculated with some guidelines (Coste, Ecosse, Leplège, Pouchot, & Perneger, 2001; Ware, Kosinski, & Dewey, 2001). The statistics processing was performed with MS Excel 2010 and EPI/INFO 7 software.

Results

The average age of the patients with reconstruction was 57.07 years, compared with 43.91 of those without reconstruction. We shall further refer only to the scales related to the social, mental and emotional functionality of patients, comparing the two studied groups (*Table 1*).

Table 1. The scores achieved by the patients included in the two groups, subdivided on scales

GROUP WITHOUT BREAST RECONSTRUCTION			
Group without reconstruction	Items no.	Mean	Standard deviation
Physical Functioning PF	3 a, b, c, d, e, f, g, h, i, j	66.48	10.42
Role-Physical RP	4 a, b, c, d	55.55	24.04
Bodily Pain BP	7, 8	60.18	28.24
General Health GH	1, 11 a, b, c, d	60.92	26.28
Vitality VT	9 a, e, g, i	63.88	21.49
Social Functioning SF	6,10	70.37	21.01
Role-Emotional RE	5 a, b, c	61.75	26.39
Mental Health MH	9 b, c, d, f, h	63.4	21.43
Reported Health Transition HT	2	56.48	18.74
GROUP WITH BREAST RECONSTRUCTION			
Group with reconstruction	Items no.	Mean	Standard deviation
Physical Functioning PF	3 a, b, c, d, e, f, g, h, i, j	73.69	35.099
Role-Physical RP	4 a, b, c, d	47.82	49.95
Bodily Pain BP	7, 8	67.71	29.81
General Health GH	1, 11 a, b, c, d	78.47	23.97
Vitality VT	9 a, e, g, i	74.34	23.46
Social Functioning SF	6, 10	81.52	24.13
Role-Emotional RE	5 a, b, c	52.17	49.95
Mental Health MH	9 b, c, d, f, h	77.91	20.69
Reported Health Transition HT	2	72.82	25.44

Scale role-emotional (3 items). For the patients with reconstruction, the average of scores was 61.75 years, with a standard deviation of 26.39, compared to the average of 52.17 on those without reconstruction, the standard deviation of 49.95, with significant statistical differences ($p < 0.05$). On the item (5a) regarding the “cut down the amount of time spent on work or other activities” because of emotional problems, 37.04% of the women without breast reconstruction answered they reduced it, compared to 43.47% of those with breast reconstruction. They “accomplished less than they would like” because of emotional problems (item 5b) in 40.74% of cases without reconstruction, compared to 47.82% of those with reconstruction. 33.33% of the women without reconstruction and only 52.17% of the patients with breast reconstruction had difficulties when performing the work or other activities “less carefully than usual”, because of the emotional problems (item 5c). *Scale social functioning (2 items).* Regarding the average of scores achieved by the patients with breast reconstruction, this one was 81.52, with the standard deviation of 24.13, and for the women without reconstruction, the average was of 70.37, with a standard deviation of 21.01.

On questioning (item 6) if the “health problems interfered with normal social activities” especially for the patients without breast reconstruction who answered,

these were not influenced at all in 29.62% of cases, compared to 68.86% of the patients with reconstruction. 51.85% of the women without reconstruction and 17.39% of those with breast reconstruction had few influences, and 18.53%, respectively 13.04% of the patients of the two studied groups had moderate changes. For item (no. 10) when asking if “health problems interfered with social activities“, such as visits to friends, neighbours or relatives, the patients answered that this was mostly influenced at 11.12% of the women without breast reconstruction, compared to 4.37% patients with reconstruction, sometimes for 40.74% compared to 21.73%, rarely for 33.33%, compared to 21.73% and never for 14.81% women without reconstruction, compared to 52.17% of the group of women with breast reconstruction.

Scale Mental Health (5 items). The score average of patients without reconstruction was 63.4 years, with a standard deviation of 21.43, and the one of scores registered by the patients with reconstruction was 77.91, with a standard deviation of 20.69. On questioning if they were “very nervous” (item 9b), patients without reconstruction, they answered yes “most of the time” (3.71%), “a good bit of the time” (14.81%), “some of the time” (55.55%), “a little bit of the time” (18.52%), and “none of the time” (7.41%), compared to women with reconstruction, who answered “a little bit of the time” (34.7%) or “none of the time” (43.7%).

If they “felt so down in the dumps that nothing could cheer them up” (item 9c), the answer that “most of the time” was chosen by 3.71% of the women without breast reconstruction and none of the patients with breast reconstruction; 11.12% respectively 8.7% felt for “a good bit of the time”; “some of the time” - 14.81% compared to 13.04%; “a little bit of the time” and “none of the time” - 74.07%, compared to 78.26%.

37.04% of the women without breast reconstruction and 60.86% of those with reconstruction stated they “felt calm and peaceful” (item 9d) “all of the time” and “most of the time”, but 7.41% of the patients without reconstruction “a little bit of the time” and “none of the time”, and from those with breast reconstruction no patient chose these answers. If they “felt downhearted and depressed” (item 9f), the women without breast reconstruction answered that 11.12% “most of the time” and “a good bit of the time, compared to 13.04% of the patients with reconstruction, and “some of the time” and “a little bit of the time”, 81.48%, compared to 86.96%. From the group of patients without reconstruction, none answered she was a “happy” person (item 9h) “all of the time”, compared to 5 patients with reconstruction (21.73% of the total group); 25.93% of the women without reconstruction considered themselves happy “most of the time”, compared to 39.13% of those with reconstruction; “a good bit of the time” or “some of the time” - 29.63% of the women without reconstruction, compared to 34.77% of the patients with reconstruction; “a little bit of the time” - 14.81%, compared to 4.3%. Within both groups, no patient was “happy” “all of the time”.

The *correlations* calculated for the scores achieved by patients for the items taken into consideration showed a strong relationship between the answers to the question if they “cut down the amount of time spent on work or other activities” and “accomplished less than they would like” because of emotional problems, both for the group of women without reconstruction ($r=0.7689$), as well as for the group of patients with breast reconstruction ($r=0.7404$). The positive correlation between the question if they “felt downhearted and depressed” and “did work or other activities less carefully than usual” because of the same emotional problems, is interested to be noticed on patients without reconstruction ($r .62$) also a very weak linear relationship for women with reconstruction, for the same items ($r .27$). Also, the negative correlation is emphasized on patients without reconstructions, between the question if they “felt so down in the dumps that nothing could cheer them up”, and the question if the “health problems interfered with normal social activities” related to family, friends ($r -.01$), while in the group of women with breast reconstruction, no negative correlation was calculated. (Table 2 & 3)

Table 2. Correlations between item scores in group without breast reconstruction

Items	5a	5b	5c	6	10	9b	9c	9d	9f	9h
5a	1									
5b	0.768901745	1								
5c	0.840834053	0.7716949	1							
6	0.348370821	0.24455799	0.346566	1						
10	0.628757612	0.49053542	0.62909	0.150812	1					
9b	0.293203535	0.21683508	0.372202	-0.06754	0.343888	1				
9c	0.447549657	0.5001089	0.613064	-0.01297	0.302323	0.388793	1			
9d	0.231736127	0.28817578	0.360185	0.005002	0.510722	0.159877	0.15773	1		
9f	0.534397607	0.56043704	0.624652	0.110274	0.547584	0.398813	0.68093	0.438816	1	
9h	0.351467512	0.32075145	0.502082	0.106199	0.359634	0.136285	0.183157	0.534872	0.278136	1

Table 3. Correlations between items scores in group with breast reconstruction

Items	5a	5b	5c	6	10	9b	9c	9d	9f	9h
5a	1									
5b	0.74047959	1								
5c	0.488563853	0.742424	1							
6	0.443601944	0.554081	0.580646	1						
10	0.676206793	0.597857	0.618193	0.584731	1					
9b	0.40790865	0.198273	0.371761	0.391091	0.554391	1				
9c	0.513298922	0.456958	0.490668	0.658593	0.556994	0.778102	1			
9d	0.302775949	0.066281	0.136981	0.312112	0.410391	0.763751	0.740606	1		
9f	0.288832681	0.202743	0.279645	0.576112	0.354677	0.693768	0.770801	0.642242	1	
9h	0.327942451	0.37392	0.34276	0.627852	0.553892	0.539903	0.492989	0.476582	0.426537	1

Discussions

Breast cancer is a major health problem of the current society, with physical, organic but also psychological impact that could occur after mastectomy as depression, increased anxiety, embarrassment, even suicidal ideas (Stavrou *et al.*, 2009). Some studies show that there is a positive correlation between sexual difficulties and variables such as age, marital status, chronic fatigue and therapy modality (hormonal therapy, chemotherapy or radiotherapy) (Webber *et al.*, 2011). On other studies, authors have identified on partners of patients with mastectomy that although the rate of adaptation, as for their partners, was situated at a relatively high level, in a subgroup has been identified a rate of distress raised due to couple sexual restrictions, partners' physical image after surgery and frequent visits to the hospital (Wellisch, Jamison, & Pasnau, 1978). In this situation, the multi-disciplinary preoperative physical and mental preparation and postoperative medical and psychological therapy should consider the quality of psychic life to determine the sexual counselling both individually and as a couple (Hoga, Mello, & Dias, 2008; Manganiello, Hoga, Reberte, Miranda, & Rocha, 2011). It is shown that reconstructive surgery sessions combined with psychological and spiritual integrative therapy already shows promising results (Perez-San-Gregorio, Fernandez-Jimenez, Mart3n-Rodr3guez, Borda-Mas, & Rincon-Fernandez, 2013).

The conservative treatment such as lumpectomy followed by radiotherapy or breast reconstruction after total mastectomy represents viable alternatives to the mastectomy alone, especially for the initial stages of neoplasm. By the important changes during the '60-'70 years of the last century, regarding the female role in society and the opinions on sexuality, the breast reconstruction was considered useless and achieved by very few patients. This point of view changed within the last decades, so that more women chose breast reconstruction after mastectomy for cancer. This trend of increasing the frequency of breast reconstructions lead also to efforts for improving the surgical techniques, taking into account not only the survival rates but also the quality of life of patients and their happiness (Malata, Mcintosh, & Purushotham, 2000).

The concept of QoL is a term extensively used by psychologists, philosophers, economists, politicians and health services suppliers. The term has its origin in Aristotle's *Nicomachean Ethics* (330 BC), where the philosopher demonstrates the connection between the quality of life, happiness and personal values (Stavrou *et al.*, 2009). In a subjective manner, the concept of QoL contains referrals to other concepts, as they are perceived by each person separately, such as happiness, positive and negative emotions, life satisfaction, and the subjective wellness. The big philosophy schools of Plato, Socrates and Aristotle associated the happiness with the idea of virtue. In *Dialogues*, Plato (360 BC) writes that Socrates would have told to Polus: "*the men and women who are gentle and good are also happy, as I maintain, and the unjust and evil are miserable*". They considered the persons

became happy by being wise and making the right decisions. People do not act irresponsibly for themselves or for others when they make the right decisions. Bentham (1789), the founder of moral philosophy of utilitarianism, saw the concept of happiness as a consequence of the choice between alternative options of action. His vision of happiness was shown by his well-known dictum, “*choosing the action that leads to the greatest happiness of the greatest number*”, happiness is a state of being individuals experience as a result of their own and others’ actions (Sirgy, 2012).

Breast reconstruction is a secure technique and it certainly improves the quality of life on patient with mastectomy for cancer. Despite this, many women do not choose reconstruction, and their reasons for this decision are less profoundly understood. A recent study carried out in Australia (Somogyi *et al.*, 2015) proposed itself to identify the factors influencing women to reconstruct their breasts or not and to understand better the attitude women have towards the idea of reconstruction. To this effect, an online survey was distributed among patients with breast cancer, and the results were tabulated, qualitatively described and analysed using a model of logistic multiple regression. The factors positively influencing the possibility of using a reconstruction technique included younger age, bilateral mastectomy, access to private hospitals, a lower level of family or professional responsibilities, a high level of family support and the early discussion with the doctor, regarding the options of reconstruction. The most frequent reasons of avoiding the reconstruction were that the patients did not feel the need or they did not want other surgical interventions anymore. The sources of information regarding the reconstruction, the most frequently noticed, came from the generalist surgeon or gynaecologist, followed by the plastic surgeon, then the oncology assistant, but the plastic surgeon was considered to be the most influent. Authors mentioned that a better knowledge of these barriers the patients rise against breast reconstruction can lead to improving capacity of clinicians to educate the patients with mastectomy properly and to ensure them an effective decision for the breast reconstruction.

American Society of Plastic Surgeons Report published in 2014 mentions that in USA, the number of women having chosen the breast reconstruction was 102,215 (from which 8455 implant alone, 74,694 tissue expander and implant, 4939 TRAM flap, 7866 DIEP flap, 5572 - *latissimus dorsi* flap, 689 - other flap), compared to 95,589 in 2013 (an increase of 7%) and to 78,832 in 2000 (an increase of 30%). Also for 2014, the distribution depending on race, in USA, was 73% Caucasian women, 14% Afro-American, 3% Asiatic and 9% Hispanic. Regarding the distribution depending on age group, in 2014, for 13-19 years, 552 reconstructions were recorded, on 20-29 years’ old women - 2685, on 30-39 years’ old - 12,287, on 40-54 years’ old - 52.818, and on women older than 55 years - 33.873 interventions (Plastic Surgery Statistics Report, 2014).

Although the rate of reconstruction increased during the last years, the percentage of women choosing breast reconstruction after mastectomy for cancer is still low (Alderman, Wei, & Birkmeyer, 2006). These small figures are, partially, due to the low rates of guiding these patients to plastic surgery. A survey on the number of patients having visited general surgeons, from a population sample of 1844 women with breast cancer, in 2002, showed that only 24% of them were guided to breast reconstruction, and another survey showed that the most frequent reason of patients refusal of reconstruction after mastectomy is avoiding another surgical intervention. The inadequate education of health also plays an important role (Nahabedian, 2015).

In a study carried out on a group of 84 patients with mastectomy (Lee *et al.*, 2011), only 37.9% of the questions related to breast reconstruction had correct answers - and this happened in USA in 2011 (such survey would be useful for Romania too; also the comparison of the results). The statement of authors from Division of Plastic and Reconstructive Surgery, University of North Carolina, Chapel Hill, USA that "*higher education (p = 0.003) and having reconstruction (p<0.0001) were associated with higher knowledge*" and that "*use your own tissue to make a breast*" (odds ratio, 1.53; 95% CI, 1.15, 2.05) is worth recalling and "*wake up after mastectomy with reconstruction underway*" (odds ratio, 1.66; 95% CI, 1.30, 2.12) were associated with reconstruction, but "*avoid putting foreign material in your body*" was associated with "*no reconstruction* (odds ratio, 0.64; 95% CI, 0.48, 0.86)."

Despite the benefits of body image, self-esteem, sexuality and quality of life, the records from the national data basis of USA patients being studied, during 1998-2008 (Nationwide Inpatient Sample database), less than 25% of patients choose the breast reconstruction. Even after the approval of Women Health and Cancer Rights Act, the reports had no changes on the number of reconstructions after mastectomy (Albornoz *et al.*, 2013). One single annual report underlined suggestive changes of the pattern of breast reconstructions in USA. The rate of immediate reconstructions after mastectomy increased with approximate 5% per year, but the autologous reconstructions remained the same. The use of implants increased significantly ($p<0.01$), outperforming the autologous methods, becoming the leader of reconstruction techniques, after 2002. The most powerful predictors of using the implant procedures were the bilateral mastectomies (frequency: 17% increase annually in USA vs. 2% decrease per year for unilateral ones), although the argument of using the implant technique has multiple decision factors.

Conclusions

The scores indicating, implicitly, the quality of life, were higher for the scales regarding the social functionality and mental health, on patients with breast reconstruction, compared to those achieved by the patients without plastic surgery procedures. Nevertheless, on the scale regarding the emotional role of physical problems, the patients with mastectomy for breast cancer and who did not choose a breast reconstruction technique, had slightly higher scores than the women with reconstruction, but with no statistic significant differences. The emotional role and mental health positively correlated with the emotional affectation due to the physical pain, thus influencing the quality of life on patients who did not choose or refused the breast reconstruction procedures. Studies on larger groups would be useful to compare for emphasizing the differences of QoL on women who started from the same problem, mastectomy for breast cancer, and who, subsequently, chose to benefit breast reconstruction, compared to the ones who did not.

Acknowledgements

This paper received financial support through the “Program of excellence in doctoral and postdoctoral multidisciplinary research in chronic diseases”, contract no. POSDRU/159/1.5/S/133377, beneficiary “Grigore T. Popa” University, co-funded by European Social Fund through Sectorial Operational Programme Human Resources Development 2007-2013.

References

- Albornoz, C.R., Bach, P.B., Mehrara, B.J., Disa, J.J., Pusic, A.L., McCarthy, C.M., Matros, E. (2013). A paradigm shift in U.S. Breast reconstruction: increasing implant rates. *Plastic and Reconstructive Surgery*, 131(1), 15-23.
- Alderman, A.K., Wei, Y., & Birkmeyer, J.D. (2006). Use of breast reconstruction after mastectomy following the Women’s Health and Cancer Rights Act. *The Journal of the American Medical Association*, 295(4), 387.
- Avocatnet.ro. Retrieved June 12th, 2015, from http://www.avocatnet.ro/content/articles/id_36173/OUG-nr-2-2014-modificarea-si-completarea-Legii-nr-95-2006-privind-reforma-in-domeniul-sanatatii-precum-si-pentru-modificarea-si-completarea-unor-acte-normative.html
- Boughton, B. (2000). Emotional Outcome After Breast Surgery Is Highly Individual. *Journal of the National Cancer Institute*, 92(17), 1375-1376.
- Coste, J., Ecosse, E., Leplège, A., Pouchot, J., & Perneger, T. (2001). *Le questionnaire MOS SF-36. Manuel de l'utilisateur et guide d'interprétation des scores* (ESTEM ed.). France.

- Helliwell, J.F., Layard, R., & Sachs, J. (2014). World Happiness Report 2015. New York: UN Sustainable Development Solutions Network.
- Heneghan, H.M., Prichard, R.S., Lyons, R., Regan, P.J., Kelly, J.L., Malone, C., Kerin, M.J. (2011). Quality of life after immediate breast reconstruction and skin-sparing mastectomy - A comparison with patients undergoing breast conserving surgery. *European Journal of Surgical Oncology*, 37 937-943.
- Hoga, L.A., Mello, D.S., & Dias, A.F. (2008). Psychosocial perspectives of the partners of breast cancer patients treated with a mastectomy: an analysis of personal narratives. *Cancer Nursing*, 31(4), 318-325.
- Lee, C.N., Belkora, J., Chang, Y., Moy, B., Partridge, A., & Sepucha, K. (2011). Are patients making high-quality decisions about breast reconstruction after mastectomy? *Plastic and Reconstructive Surgery*, 127(1), 18-26.
- Macadam, S.A., Ho, A.L., Lennox, P.A., & Pusic, A.L. (2013). Patient-reported satisfaction and health-related quality of life following breast reconstruction: a comparison of shaped cohesive gel and round cohesive gel implant recipients. *Plastic and Reconstructive Surgery*, 131(3), 431-441.
- Malata, C.M., Mcintosh, S.A., & Purushotham, A.D. (2000). Immediate breast reconstruction after mastectomy for cancer. *British Journal of Surgery*, 87, 1455-1472.
- Manganiello, A., Hoga, L.A., Reberte, L.M., Miranda, C.M., & Rocha, C.A. (2011). Sexuality and quality of life of breast cancer patients post mastectomy. *European Journal of Oncology Nursing*, 15(2), 167-172. doi: 10.1016/j.ejon.2010.07.008
- McKean, L.N., Newman, E.F., & Adair, P. (2013). Feeling like me again: a grounded theory of the role of breast reconstruction surgery in self-image. *European Journal of Cancer Care*, 22, 493-502. doi: 10.1111/ecc.12055
- Mihaila, V., Enachescu, D., & Badulescu, M. (2001). General population norms for Romania using the Short Form 36 Health Survey (SF-36). *QoL Newsletter*, 26, 17-19.
- Montazeri, A., Gillis, C.R., & McEwen, J. (1996). Measuring quality of life in oncology: is it worthwhile? Part I. Meaning, purposes, and controversies. *European Journal of Cancer Care*, 5, 159-167.
- Nahabedian, M. (2015). Breast reconstruction: Preoperative assessment. Retrieved June 4th, 2015, from <http://www.uptodate.com/contents/breast-reconstruction-preoperative-assessment>
- National Cancer Institute. Cancer of the Breast.
- Perez-San-Gregorio, M.A., Fernandez-Jimenez, E., Mart3n-Rodr3guez, A., Borda-Mas, M., & Rincon-Fernandez, M.E. (2013). Quality of Life in Women Following Various Surgeries of Body Manipulation: Organ Transplantation, Mastectomy, and Breas Reconstruction. *Journal of Clinical Psychology in Medical Settings*, 20, 373-382. doi: 10.1007/s10880-013-9360-5
- Plastic Surgery Statistics Report. (2014).
- Rowland, J.H., Desmond, K.A., Meyerowitz, B.E., Belin, T.R., Wyatt, G.E., & Ganz, P.A. (2000). Role of breast reconstructive surgery in physical and emotional outcomes among breast cancer survivors. *Journal of the National Cancer Institute*, 92(17), 1422-1429.

- Schover, L.R. (1991). The impact of breast cancer on sexuality, body image, and intimate relationships. *CA Cancer J Clin*, 41(2), 112-120.
- Sirgy, M.J. (2012). *Philosophical Foundations, Definitions, and Measures Social Indicator Research Series 50*: Springer Science + Business Media B.V.
- Somogyi, R.B., Webb, A., Baghdikian, N., Stephenson, J., Edward, K.L., & Morrison, W. (2015). Understanding the factors that influence breast reconstruction decision making in Australian women. *The Breast*, 24(2), 124-130.
- Stavrou, D., Weissman, O., Polyniki, A., Papageorgiou, N., Haik, J., Farber, N., & Winkler, E. (2009). Quality of Life After Breast Cancer Surgery With or Without Reconstruction. *ePlasty*, 9, e18.
- Szadowska-Szlachetka, Z., Stanislawek, A., Kachaniuk, H., Charzyńska-Gula, M., Bartoszek, A., Galeziowska, E., Kocka, K. (2013). Occurrence of depression symptoms measured by the Beck Depression Inventory (BDI) in women after mastectomy and breast reconstruction with regard to the assessment of quality of life. *Przegląd Menopauzalny*, 4, 293-299. doi: 10.5114/pm.2013.37843
- Ware, J.E., Kosinski, M., & Dewey, J.E. (2001). *How to score version 2 of the SF-36 health survey*.
- Ware, J.E., & Sherbourne, C.D. (1992). The MOS 36-item short-form health survey (SF-36). *Medical Care*, 30, 473-483.
- Webber, K., Mok, K., Bennett, B., Lloyd, A.R., Friedlander, M., Juraskova, I., . . . FolCan study group. (2011). If I am in the mood, I enjoy it: an exploration of cancer-related fatigue and sexual functioning in women with breast cancer. *The Oncologist*, 16(9), 1333-1344. doi: 10.1634/theoncologist.2011-0100
- Wellisch, D.K., Jamison, K.R., & Pasnau, R.O. (1978). Psychosocial aspects of mastectomy: II. the man's perspective. *The American Journal of Psychiatry*, 135(5), 543-546.
- Yang, X., Zhu, C., & Gu, Y. (2015). The Prognosis of Breast Cancer Patients after Mastectomy and Immediate Breast Reconstruction: A Meta-Analysis. *PLoS ONE*, 10(5), 1-13. doi: 10.1371/journal.pone.0125655