




A MOOC About Bariatric Surgery Improves Knowledge and Promotes Patients' Soft Skills

E. Pottier¹ · L. Boulanouar¹ · M. Bertrand¹ · A. Estrade¹ · A. Croiset¹ · C. Martineau² · J. Y. Plantec³ · B. Escourou⁴ · P. Ritz^{1,5} 

Published online: 30 August 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

The ASMBS recommends that patients should be provided with educational materials to improve informed consent about bariatric surgery. Massive online open courses (MOOCs) are learning sources which are free, online, and available to people in remote situations. A French language MOOC regarding preparation for obesity surgery targets patients, as well as HCP, and people curious about this treatment. The patients' knowledge and skills after completion of the 5-week learning sessions (evaluated with semi-direct interviews) improved. Soft skills such as feeling empowered to ask questions to their HCP and explaining their plan to their relatives improved. This study suggests that MOOC can be a resource to improve knowledge and soft skills in patients for a better consent to surgery and follow-up.

Keywords Obesity surgery · Education · Informed consent · Massive online open course

Introduction

Bariatric surgery is the most effective therapy for long-term weight loss, reducing co-morbidities, and overall mortality in severe obesity [1]. A preparation of patients to better understand the changes to be implemented (diet, physical activity, etc.) and the skills to be acquired is indicated [2]. ASMBS recommends that thorough discussion with the patient should take place for informed consent, and that patients should also be provided with educational materials and access to preoperative educational sessions [3].

Massive Open Online Courses (MOOCs) are tools for distance learning via the Internet [4], allowing learning without constraint of place or time. Few studies have focused on the experience of those who have benefited from MOOCs [5], and on the ability to promote skills. It suggests the need for qualitative studies, allowing participants to express themselves, seeking to understand rather than to measure an effect (<https://asmbs.org/resources/clinical-practice-guidelines-for-the-perioperativenutritional-metabolic-and-nonsurgical-support-of-the-bariatric-surgery-patient>).

In 2016, Toulouse University designed and issued a MOOC “Obesity Surgery” that proposes information about obesity surgery, simultaneously targeting patients, HCPs, and information-seeking persons.

The main objective of our study is to examine the experience (satisfaction, soft skills) of the people with an obesity surgery project who have completed this training, through semi-direct interviews.

E. Pottier and L. Boulanouar contributed equally to this work.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11695-019-04143-5>) contains supplementary material, which is available to authorized users.

✉ P. Ritz
patrick.ritz@wanadoo.fr

¹ Nutrition Department, CIO and CHU, Toulouse, France

² Dietetics Department, CIO and CHU, Toulouse, France

³ INSA Toulouse, Toulouse, France

⁴ Département Universitaire de Médecine Générale, University Paul Sabatier, Toulouse, France

⁵ Inserm U1027, University Paul Sabatier, Toulouse, France

Patients and Methods

The MOOC

This training took place over 5 weeks from September 2016. Each week addressed a particular theme around bariatric

surgery (see [supplementary material](#)). Each module was sequenced with 9 videos telling the story of 3 characters, 2 in a surgical journey, and 1 not wishing to be operated, and 9 experts' videos delivering validated information. Quizzes evaluated the learning. A forum for exchange between participants and with experts was available. Seventy percent of the 2637 people that registered in this MOOC completed the 5-week session.

Learners

Thirty-four people contacted us after an invitation to participate via the forum, and 12 met the inclusion criteria (over 18 years of age, obese, and completed the MOOC). The population of the study was representative of patients receiving bariatric surgery (Table 1).

Semi-directive Interviews

Two researchers conducted the analytical and the reflective work to accurately capture and analyze the statements made.

The semi-structured interviews were conducted, face-to-face or via Skype, using an interview guide composed of open-ended questions ([Appendix](#)). The statements were recorded, and transcribed word for word. A thematic analysis was then conducted: coding ideas, and grouping codes into categories and themes. Finally, the triangulation of the data was performed (<https://asmbs.org/resources/clinical-practice-guidelines-for-the-perioperativenutritional-metabolic-and-nonsurgical-support-of-the-bariatric-surgery-patient>)[6].

The teaching experience is presented as categories:

- The technical aspect of the MOOC tool: advantages and disadvantages, and overall satisfaction
- The integration of distance education into everyday and family life
- The interaction with the MOOC, the comparison with face-to-face training, and its place of this MOOC in the context of a possible bariatric surgery
- The structure of this MOOC, the quality of the information delivered
- Prospects for improvement

Table 1 Population characteristics

Sex	10/12 women	
Age (years)	47.4 (SD 8.2)	Range 37–61 years
BMI (kg/m ²)	43 (SD 9.8)	Range 30.1–64.1
Educational level	8/12 have higher than a bachelor's degree	
Living space	5/12 live in rural areas	
Family support	7/12 are in a relationship	
Operated	5/12 were operated	

Results

Seven interviews were face-to-face, and five were via Skype. The interviews lasted 45 to 75 min. At the end of the 11th interview, no new element emerged, confirmed by the 12th interview, reaching data saturation.

Technical Aspect of the MOOC Tool and Overall Satisfaction

Despite the fact that each participant was alone in front of his/her computer to carry out the training, no feeling of loneliness was reported. The forum was seen as a place for exchange between participants rather than with health professionals, but was barely used.

All participants perceived the MOOC as a positive and useful experience, which responded to an expectation for knowledge about bariatric surgery. They also said that it responded to their own questions.

Integration of Distance Education into Everyday and Family Life

All participants perceived the MOOC as bringing knowledge home. The access was flexible allowing the choice of the most suitable time to learn (schedules, intellectual availability...). This was perceived as optimizing their learning.

The participation of family members in the completion of the MOOC was very variable. Several participants considered the MOOC as a personal initiative where family members were not or little informed. Some family members did not want to get involved. Conversely, some have completely or partly completed it with family members. Half of the participants perceived the MOOC as a support tool, facilitating exchanges with family members.

Interaction with the MOOC, Comparison with Face-to-Face Training, and its Place in the Context of a Possible Bariatric Surgery

The different sequences were appreciated positively. Participants were able to identify themselves within the

characters' stories, reducing the feeling for guilt. Expert videos were then easier to understand.

Many participants reported that this access to information prevented them from appearing in public. This allowed information to be sought with less apprehension. Distance education also prevented traveling and made learning compatible with personal and professional obligations. The MOOC reached people who would not have had access to face-to-face information. Many people expressed an interest in participating in complementary face-to-face workshops.

In addition to acquiring new knowledge, the MOOC permitted the acquisition of new psychosocial skills. Participants felt more willing to interact and ask questions to their caregivers. They also reported that it helped communicating with their family, feeling empowered to explain their own bariatric surgery project.

The Structure of this MOOC and Quality of the Information Delivered

The MOOC allowed participants to learn at their own pace, to replay videos in order to better understand and learn better. The content was perceived as valid, complete, and unbiased.

Prospects for Improvement

Participants suggested improving the quizzes, and the intelligibility of the rhetoric, and giving a greater role to operated patient via testimonies. Some other topics were proposed such as physical and psychological changes after surgery.

Discussion

This study shows that a MOOC intended to deliver valid information to individuals in an obesity surgery course brings a high degree of satisfaction, providing access to simple information in a fun way. This information would not have been easily accessed by a face-to-face meeting. Psychosocial skills and the ability to provide informed consent are promoted.

It is one of the few studies in the health field qualitatively evaluating learners' experiences. While most MOOCs about health are for HCPs, this one is intended for anyone interested: patients, HCPs, and anyone interested in learning more about bariatric surgery, including families of patients.

This MOOC had an excellent retention rate (the percentage of enrollees who complete the training to the end), of nearly 70%, while the literature reports the usual rates are around 10% [7, 8]. From the conception of this MOOC, we worked on the main retention factors. MOOCs completion rates seem to be directly related to the topic area(s) and their relevance to

learners' individual needs [9], more so than the specialist or elite status of the supporting institution. This is reflected in our study by showing that the MOOC meets expectations. To be successful, a MOOC should present the data in such a way that it can be accessed anywhere by anyone in the world, regardless of any disability. Here, people say that the MOOC was a way to access information, without having to go anywhere. To ease the understanding, it is important that the MOOC be presented in short, easy-to-download videos so that learners can do the training at their own pace, including the option to review content. The training was compatible with personal and professional obligations, allowing the choice of the best times to devote themselves to it. MOOCs also prevent trips to attend face-to-face meetings, which are not always feasible (remote situations, time schedule...). Half of the participants told us that they could not have attended face-to-face training, partly because of the fear of appearing in public or being judged by others.

The improvement of psychosocial skills (soft skills) is an original aspect of this study [10], that was unexpected. The feeling of gaining legitimacy enabled participants to enrich individual exchanges with their family members and caregivers. The knowledge acquired eased the adoption of an active posture, in their management of obesity, and in the preparation for surgery. Informed consent was therefore probably more efficient. At some points, a combination of distance learning and face-to-face meetings is desirable. Pair meetings and information sessions can be eased by a sufficient level of pre-existing knowledge. Face-to-face meetings with the surgeon and the preparation team are eased, avoiding the individual repetition of the same information, and probably giving access to a better quality evaluation of the understanding and consent.

Conclusion

In conclusion, this MOOC about obesity surgery satisfies patients and allows them to acquire useful psychosocial skills, allowing them to be active in their preparation. The flexibility and freedom of realization of this training clearly appeared as an advantage compared with face-to-face training. The combination of distance learning and face-to-face meetings is probably of added value.

Acknowledgments The authors would like to acknowledge the Cardiomet Institute, Toulouse CHU (university hospital), for the help and support.

Compliance with Ethical Standards This study comply with ethical standards.

Conflict of interest The authors declare that they have no conflict of interest.

Appendix. Interview guide

Icebreaker, remember anonymity, independence, no judgment, ability to stop when they want, etc.

Thank you for coming. We will talk about you and your experience; your opinion is very important and matters to us.

1. If you are comfortable, I would like you to tell me about your experience with the internet tool...

- What were your thoughts on it?...
- did you feel comfortable? ...was it easy to use?...
- were there things that bothered you, or on the contrary...
- and the site? ... what did you think of it? ... could it be improved?

2. And the fact that it's at home...

- what brought you to do it remotely?
- and you there in front of the computer ... to do that remotely...
- and the fact that the information comes to you?...
- it may be more practical ... to access it when you want ...
- it's more private...
- you feel lonely...
- and if you had to go to a training... in a care facility... and do it in a group with other people... and with caregivers...

3. And at home, how did it go?...

- and your family members ... are they aware ... is it easy to talk about it? ...did it change anything?...
- did they see? ...did they ask questions? ...what do they think about it? ... does it interest them? ... How did they react? Are they involved?...
- and focusing at home? ... with the family around? ... is it complicated? ...

4. - and if we have questions?... there was also a forum ... was it useful?...

II. During this experience, you met 3 characters, we will talk a little bit about them, I would like to know your thoughts...

Who do we start with?

There was... Gaëlle... Paul... Julie...

1. So Gaëlle...

- -What affected you in her story? ... What is important to you in her story? ... what do you think?
- -It is going well with Gaëlle? ... is she determined? ...
- -was everything fine with her?...

- -and her family members? it's not easy...

2. Paul...

- how is Paul? ... do you understand him? ... his path? ... can he change? ... all alone? ... is it complicated? ... is it hard for him? ... and in the end ... the fact that surgery is not possible...

3. Julie...

- -What affected you in her story? ... What is important to you in her story?...
- the moral... at first ... why is it important that she gets better? ...
- and the surgery? ... does that solve all her problems?
- and after the surgery? ... why it is useful that she continues to be accompanied by professionals? ... according to the answer: and for the moral/risk of complications?...

Which one did you prefer? Which one did you like the least?

How would you have chosen someone?... How would you have made this character?...

III. In total, if you had to summarize your experience in a few words, you would say...

References

1. Sjöström L. Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery. *J Intern Med.* 2013;273(3):219–34.
2. Haute Autorité de Santé (2017) : Indicateurs pour l'amélioration de la qualité de la sécurité des soins – Chirurgie de l'obésité chez l'adulte : prise en charge préopératoire minimale. https://www.hasante.fr/portail/upload/docs/application/pdf/201712/rapport_obesite_2017.pdf.
3. van Hout GC, Verschure SK, van Heck GL. Psychosocial predictors of success following bariatric surgery. *Obes Surg.* 2005;15(4):555–60.
4. Bauchowitz A, Azarbad L, Day K, et al. Evaluation of expectations and knowledge in bariatric surgery patients. *Surg Obes Relat Dis.* 2007;3(5):554–8.
5. Stewart F, Avenell A. Behavioural interventions for severe obesity before and/or after bariatric surgery: a systematic review and meta-analysis. *Obes Surg.* 2016;26(6):1203–14.
6. Kellogg S. Online learning: how to make a MOOC. *Nature.* 2013;499(7458):369–71.
7. Liyanaganawardena TR, Williams SA. Massive open online courses on health and medicine: review. *J Med Internet Res.* 2014;16(8):e191.
8. Bontemps S, Pechere-Bertschi A. Innovation in learning: a MOOC about hypertensive patients caring. *Rev Med Suisse.* 2015;11(485):1660–3.

9. Draffan EA, Wald M, Dickens K, et al. Stepwise approach to accessible MOOC development. *Stud Health Technol Inform.* 2015;217:227–34.
10. Meinert E, Alturkistani A, Brindley D, et al. Protocol for a mixed-methods evaluation of a massive open online course on real-world evidence. *BMJ Open.* 2018;8:e025188.
11. Hossain MS, Shofiqul Islam M, et al. A massive open online course (MOOC) can be used to teach physiotherapy students about spinal cord injuries: a randomized trial. *J Phys.* 2015;61(1):21–7.
12. Reich J. Rebooting MOOC research. *Science.* 2015;347(6217):34–5.
13. Wewer Albrechtsen NJ, Poulsen KW, Svensson LO, et al. Health care professionals from developing countries report educational benefits after an online diabetes course. *BMC Med Educ.* 2017;17(1):97–104.
14. Mays N, Pope C. Qualitative research in health care : assessing quality in qualitative research. *BMJ.* 2000;320(7226):50–2.
15. Jonsen K, Jehn KA. Using triangulation to validate themes in qualitative studies, qualitative research in organizations and management. *Int J.* 2007;4(2):123–50.
16. Milligan C, Littlejohn A. How health professionals regulate their learning in massive open online courses. *Internet High Educ.* 2016;31:113–21.
17. Paterson J, Hughes K, Steer L, et al. Massive open online courses (MOOCs) as a window into the veterinary profession. *Vet Rec.* 2017;180(7):179.
18. Berman AH, Biguet G, Stathakarou N, et al. Virtual patients in a behavioral medicine massive open online course (MOOC): a qualitative and quantitative analysis of participants' perceptions. *Acad Psychiatry.* 2017;41(5):631–41.
19. Koch S, Hägglund M. Mutual learning and exchange of health informatics experiences from around the world - evaluation of a massive open online course in eHealth. *Stud Health Technol Inform.* 2017;245:753–7.
20. Pérez-Moreno MA, Peñalva-Moreno G, Praena J, et al. Evaluation of the impact of a nationwide massive online open course on the appropriate use of antimicrobials. *Antimicrob Chemother.* 2018;73(8):2231–5.
21. Khalil H, Ebner M. MOOCs completion rates and possible methods to improve retention – a literature review. In: *Proceedings of world conference on educational multimedia, hypermedia and telecommunications 2014.* Chesapeake: AACE. p. 1236–44.
22. Sinclair J, Boyatt R, Rocks C, et al. Massive open online courses: a review of usage and evaluation. *Int J Learn Tech.* 2015;10(1):1–23.
23. Wakefield A, Cartney P, Christie J, et al. Do MOOCs encourage corporate social responsibility or are they simply a marketing opportunity? *Nurse Educ Pract.* 2018;33:37–41.
24. Hollands FM, Tirthali D. 2014. <https://files.eric.ed.gov/fulltext/ED547237.pdf>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.