

Contraceptive Counselling in Canadian Bariatric Surgery Clinics: A Multicenter Qualitative

Investigation of Patient and Healthcare Professionals' Experiences

1 Title Page

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3 43**Abstract**

44 **BACKGROUND:** Evidence suggests an increase in fertility and unintended pregnancy following  
45 bariatric surgery; contraceptive counselling is therefore an important facet of surgical planning.  
46 Our aim was to investigate a) Canadian patients' experiences of contraceptive counselling and b)  
47 health care professionals (HCPs) attitudes toward and perceptions of facilitators and barriers to  
48 contraceptive counselling in bariatric surgery clinics.

49  
50 **METHODS:** We conducted semi-structured interviews with patient participants and HCPs at  
51 publicly funded Canadian bariatric surgery clinics. We recruited bariatric HCPs from across Canada  
52 using snowball sampling, and patient participants from three Canadian bariatric surgery programs.  
53 Team members analyzed transcripts thematically.

54  
55 **RESULTS:** Our analysis of experiences identified three separate patient counselling needs that  
56 were typically unmet: 1) being informed of recommendations to avoid pregnancy post-operatively,  
57 2) facilitation in making a contraception choice, and 3) information on how patients gynecologic  
58 health may change post-operatively. HCPs interviews indicated that they contribute to this  
59 education gap by assuming that 1) someone else on the team would perform counselling, and 2) not  
60 all patients need contraceptive counselling. Both groups reported a desire for increased education  
61 and resources.

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63 **CONCLUSIONS:** Current contraceptive counselling in Canadian bariatric surgery clinics does not  
64 adequately address priorities identified by patient participants and HCPs.

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3 66 **IMPLICATIONS:** Our study indicates that there is a need for structured contraceptive counselling  
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5 67 in bariatric surgery clinics, covering pregnancy recommendations, contraceptive choices, and post-  
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7 68 operative gynecologic health. Information resources that support patients and HCPs who provide  
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9 69 counselling are needed.  
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Confidential

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3 73 **Contraceptive Counselling in Canadian Bariatric Surgery Clinics: A Multicenter Qualitative**  
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5 74 **Investigation of Patient and Healthcare Professionals' Experiences**

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8 75 1. Introduction

9  
10 76 In North America, the majority of bariatric surgery is performed on women.(1) Following bariatric  
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12 77 surgery, fertility rates improve.(2) Due to concerns for pregnancy complications, the current  
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14 78 recommendations are to avoid pregnancy in the immediate post-operative period.(2,3) In Canada,  
15  
16 79 clinicians advise a waiting period of 12-18 months.(4) Guidelines also recommend that all women  
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18 80 be counselled on contraceptive choices for the postoperative period and be advised to avoid the oral  
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20 81 contraceptive pill if having a malabsorptive procedure (e.g. Roux en Y Gastric Bypass or RYBG),  
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22 82 due to reduced efficacy.(5)  
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28 84 Despite these recommendations, current research suggests that those with recent bariatric surgery  
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30 85 are at increased risk for unintended pregnancy.(6–8) There are no published data on Canadian  
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32 86 bariatric surgery patients and their experience with contraceptive counselling.(9) International  
33  
34 87 studies indicate that healthcare professionals (HCPs) working in bariatric surgery have significant  
35  
36 88 knowledge gaps (10,11) and patients report they are not routinely counselled.(8,12) A 2018 study of  
37  
38 89 360 American women following bariatric surgery suggested that if individuals are counselled pre-  
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40 90 operatively, they are more likely to use contraception post-operatively.(12)  
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47 92 Our key objectives in this study were to investigate a) Canadian patients' experiences of  
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49 93 contraceptive counselling practices in the context of bariatric surgery, and b) Canadian HCPs'  
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51 94 attitudes toward and perceptions of facilitators and barriers to contraceptive counselling in bariatric  
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53 95 surgery clinics  
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## 2. Methods

This was a multi-site qualitative investigation involving semi-structured interviews. In order to be eligible to participate, patient participants had to be at risk of pregnancy in the post-operative period (includes non-female identified individuals who still have a uterus, vagina, and ovaries), aged 18-45 years, who had completed all pre-operative counselling. HCPs included any individual that worked in a Canadian, publicly funded, hospital-affiliated bariatric surgery clinic. Patient participants also had to be sufficiently fluent in English to answer the interview questions and have access to a telephone. All participants received a \$50 CAD Amazon.ca gift card for their participation. Ethics approval was obtained from the University of British Columbia Behavioural Research Ethics Board (H17-02862) and the participating institutions.

### 2.1 Recruitment

We recruited patient participants from three Canadian bariatric surgery clinics at their final pre-operative appointment to ensure all counselling was complete. The study was mentioned to eligible individuals by their HCPs. To minimize sampling bias, HCPs were asked to follow consistent study advertising procedures and were encouraged to mention the study to all eligible participants without discrimination. Interested participants were then provided detailed study information by a research assistant based in each clinic and, in turn, completed a permission to contact form with their expected date for bariatric surgery. We recruited HCPs via email using the Canadian Obesity Network mailing list and snowball sampling. Participants reviewed an electronic copy of the consent form and provided consent to participate in advance of each scheduled interview.

### 2.2 Data collection

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3 119 BD, a MSc-prepared, researcher and OBGYN, conducted all interviews. SM, a health services  
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5 120 researcher who has extensive experience conducting qualitative research with patients and HCPs in  
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7 121 reproductive health care, provided guidance. All interviews were completed over the telephone and  
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9  
10 122 were audio-recorded with participants' permission. Motivation for research and goals of the project  
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12 123 were discussed prior to every interview.  
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15 124  
16  
17 125 We developed semi-structured interview guides for both patient and HCP participants, with  
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19 126 questions and probes adapted from previous survey-based research on this topic. (10) All co-authors  
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21 127 reviewed the interview guides before study initiation. We began our interviews with patient  
22  
23 128 participants with questions about their demographic characteristics and reproductive health history,  
24  
25 129 and then explored their experiences with contraceptive counselling in the bariatric surgery clinic.  
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27  
28 130 Our interviews with HCPs started with demographic questions and a brief assessment of  
29  
30 131 contraceptive knowledge, then we explored their experiences with contraceptive counselling.  
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### 33 132 34 35 133 2.3 Data analysis

36  
37 134 BD transcribed the interviews with assistance from the team. BD created an initial codebook, and  
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39 135 led coding and analysis. Our transcription and analysis were concurrent with interview data  
40  
41 136 collection. We employed thematic analysis (13) and completed interviewing when we reached  
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43 137 thematic saturation based on our impressions of the data during and after data analysis; that is, we  
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45 138 completed data collection once information from new interviews led to no change in the codebook  
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47 139 and no new themes.(14) We began coding with an inductive approach (themes directed by the  
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49 140 content of the data) and then moved to incorporate a latent approach (themes representing the  
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51 141 concepts that may underpin the data). (15) BD identified initial themes and developed a codebook,  
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3 142 while SM reviewed iterative versions of the codebook and a selection of the interview audio  
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5 143 recordings and coded transcripts. All co-authors met to discuss the ongoing interviews, refine and  
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7 144 synthesize initial themes, identify patterns in the data, review the transcripts, and determine when  
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9 145 we had reached thematic saturation. Disagreements were rare, primarily about the language of  
10  
11 146 codes, and resolved through discussion. BD kept memos to record her interpretations and as a  
12  
13 147 method of ensuring concordance between research questions, data collection, and analysis  
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15 148 throughout interviews and data analysis. We used NVivo (V12) to organize the data.  
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### 21 150 3. Results

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24 151 We completed 27 semi-structured interviews with 16 patient participants and 11 HCPs from June  
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26 152 2018 to February 2019. Patient participant interviews were completed 2-4 weeks following surgery.  
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28 153 Among patient participants, 9 were currently sexually active and 13 were using contraception, with  
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30 154 the hormonal intrauterine device (n=7) being the most common method. Ages ranged from 20-45  
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32 155 and most had a university/college level education. (Table 1) Two of 11 patient participants who had  
33  
34 156 RYGB reported currently using the oral contraceptive pill. The HCPs were from central and western  
35  
36 157 Canada. The majority (n=7) participants were nurses, but participants also included surgeons and  
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38 158 non-surgeon physicians. Five of the 11 HCPs were not aware that the oral contraceptive pill is not  
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40 159 recommended following RYGB. (Table 2)  
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#### 45 160 46 47 161 3.1. Patient participants need improved pre-operative contraception counselling

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49 162 We identified three distinct domains related to pre-operative contraception counselling that were  
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51 163 high priority for patient participants and HCPs: recommendations to avoid pregnancy for 18 months  
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53 164 post-operatively, information on choosing contraception, and how gynecologic health, including an  
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3 165 increase in fertility, may change post-operatively. Patient participants identified that information on  
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5 166 *avoiding pregnancy* for 18 months after surgery was usually provided, but that there was a lack of  
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8 167 detail. *“It was literally one line on a slide,”* patient participant 5 stated when describing  
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10 168 contraceptive counselling in an orientation session. Patient participants reported that nursing staff  
11  
12 169 did the majority of counselling on contraception.

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14 170  
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17 171 Few individuals reported that a discussion about choosing the right method of contraception was  
18  
19 172 introduced by HCPs. Patient participants described how they were told to avoid pregnancy, but that  
20  
21 173 no further information was given. *“But they didn’t talk about any contraceptives or way to prevent*  
22  
23 174 *it or anything,”* patient participant 7 when reflecting on the information she received directing her  
24  
25 175 to avoid pregnancy. Patient participant 15 who was using OCP after RYGB similarly described, *“I*  
26  
27 176 *mean nothing’s really been clarified as for the pill or whether to go off it or what ... nobody has*  
28  
29 177 *given me any other options.”*

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35 179 Patient participants felt that little time was dedicated to contraceptive counselling and even less on  
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37 180 how gynecologic health may change after surgery. One participant expressed concern over what to  
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39 181 expect following her surgery with respect to her menstrual cycles:

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44 183 *“Like are my periods going to be different, because like it’s supposed to be coming up*  
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46 184 *within the week ... is it going to be on time like it was before?”* Patient participant 5

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51 186 A minority of patient participants reported that the first time they were told about avoiding  
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53 187 pregnancy and the need for contraception was when they were approached by the study team.



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## 3.2. Patient participants' perspectives on information exchange

190 All participants identified that *information exchange* was a complex process that went beyond the  
191 patient-HCP dyad. Patient participants identified a variety of resources used to gather information in  
192 the pre-operative period, including websites and social media. They also stressed the importance of  
193 clinic education materials, such as a patient orientation manual. *“That [the manual] is what we call*  
194 *our bible. That’s what we go back to and refer to all the time,”* patient participant 15 noted when  
195 discussing where contraceptive information could be included. We observed that written resources  
196 were an important adjunct to in-person communication with HCPs, and patient participants  
197 perceived there was an overwhelming amount of information relayed at appointments.

198

199 We identified a process of making assumptions about who needs contraception counselling in both  
200 patient participant and HCPs interviews. Patient participants suggested that HCPs may have decided  
201 not to discuss contraception for a variety of reasons including age, having already had children, or  
202 already using a method of contraception. Patient participant 4, who reported that she had an IUD  
203 prior to her surgery, observed:

204

205 *“I don’t know if at that point they assume that I’m good and I know some things and*  
206 *I’m taken care of and so they don’t continue the conversation.”*

207

208 We also found that patient participants recognized how these assumptions could lead to unintended  
209 pregnancies. As one participant cautioned on what could happen if contraception was not discussed,  
210 *“You don’t want to be on the pill thinking you’re fine and then all of sudden you get pregnant with*

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3 211 *your 4<sup>th</sup> child*” (Patient participant 2). Our interviews with HCP also reflected these assumptions,  
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5 212 noting where they did not perform counselling based on their personal judgment on a client’s sexual  
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8 213 activity, such as *“if their husbands have had vasectomies ... I don’t counsel any further”* (HCP 11).  
9  
10 214 Physician respondents assumed that counselling is being carried out by other members of the care  
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12 215 team, while describing they had no knowledge on what information was being communicated. As  
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15 216 one stated, *“I don’t know what the nurses are telling them about what methods they can use”* (HCP  
16  
17 217 2).  
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19 218

### 21 219 3.3 HCP perspectives on contraceptive counselling

22 220 HCPs identified that unintended pregnancy was a concern in the post-operative period and they  
23  
24 221 stressed the importance of delaying pregnancy for 18 months. They perceived that all patients in  
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26 222 their clinics were routinely informed of this recommendation and that nurses were most involved in  
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29 223 providing counselling. Physician participants reported that they were not participating in  
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32 224 contraceptive counselling. Our interviews revealed that there were no counselling tools used  
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35 225 routinely in clinics. Interviews with HCPs and patient participants indicated there was limited  
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38 226 contraception information provided in patient education materials, and contraceptive training  
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40 227 appears to be site dependent, not standardized. Without adequate training and knowledge, some  
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42 228 HCPs felt their peers may not have the self-efficacy to conduct contraceptive counseling. One  
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44 229 health care provider, who had previous experience in contraceptive counselling before coming to  
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47 230 their current position, described:  
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3 232 *“The other NPs may not have the same familiarity with contraception, so I think that’s a*  
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5 233 *barrier as well. Not to say that they don’t know about it, but there isn’t as much ease with*  
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8 234 *it”* (HCP 4)  
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12 236 HCP experiences suggest that clinics may not have protocols for contraceptive counselling, and this  
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14 237 absence could be contributing to a gap in patient education. A HCP participant explained that  
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16 238 because there is no formal policy or measure to ensure that counselling happens, it can be missed.  
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21 240 *“I think that it could definitely be missed ... I mean hopefully I don’t miss it very often,*  
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23 *but it’s kind of up to the nurse that’s doing the assessment to remember to tell them.”*  
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26 242 HCP 6  
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31 244 We also found that HCPs encountered patient comments and misconceptions about their changing  
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33 245 menstrual health after surgery. For instance, describing why a patient may be resistant to discussing  
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35 246 contraception pre-operatively, one noted, *“Often we get that ‘well I haven’t ovulated ---that’s not a*  
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37 247 *problem ’”* (HCP 9).  
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42 249 3.4. Patient participants and HCPS wish to improve and empower contraceptive decision-making  
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44 250 We found across both groups that participants expressed a desire to improve experiences for future  
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46 251 patients in the form of increased resources and education. The importance of timing and format of  
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48 252 information delivery was discussed frequently, suggesting that contraception education should be  
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50 253 initiated early in the surgical process and repeated often in both verbal and written forms. For  
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52 254 instance, when describing what could have been added to her counselling experience, one  
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3 255 participant suggested, *“I believe that a handout definitely would be helpful, something tangible”*

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5 256 (Patient participant 12). The advantage to this approach was explained as allowing individuals to

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8 257 see other care providers to access contraception, if desired.

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12 259 In our interviews, patient participants explained how repetition and multiple information mediums

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15 260 could help in the stressful pre-operative period. The instruction to delay pregnancy might be

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17 261 forgotten if only mentioned once, as one participant noted, *“but just a reminder it’s really important*

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19 262 *that if you do this [surgery] that you shouldn’t be considering getting pregnant ... because it’s a*

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21 263 *really emotional time ... and you might not be thinking”* (Patient participant 1).

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26 265 Both HCPs and patient participants identified it would be helpful to include in a resource three key

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28 266 domains: recommendations to avoid pregnancy for 18 months post-operatively, information on

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30 267 choosing contraception, and how gynecologic health, including an increase in fertility, may change

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33 268 post-operatively. As one provider described, resources should address *“having the various*

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35 269 *[contraception] options and then having reasons why birth control may not work well...but also*

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37 270 *talking about how their fertility changes when they lose weight”* (HCP 4). Patient participants

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39 271 perceived that information on choosing the right method and changing gynaecologic health in the

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42 272 post-operative period would support informed choices, *“because, you know, knowledge is power”*

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45 273 (Patient participant 9).

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#### 48 49 275 4. Interpretation

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51 276 Our study explores the experiences of patients who choose bariatric surgery in Canada with respect

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53 277 to contraceptive counselling as well as the attitudes of HCPs towards this topic. We identified three

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3 278 major domains that patient participants and HCPs believe contraceptive counselling should cover:  
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5 279 fertility and post-operative pregnancy, contraceptive choice, and post-operative changes to  
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8 280 gynecologic health. We also found that HCPs make assumptions about who should receive  
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10 281 counseling and who is doing the counselling within bariatric surgery clinics. HCPs and patient  
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12 282 participants desire more information and resources on contraceptive counselling. Our results define  
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15 283 the priority topics of contraceptive counselling in bariatric surgery and indicate the knowledge goals  
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17 284 of both patients and HCPs.  
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19 285  
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21 286 There are no other currently published studies that use qualitative methods to identify desired  
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24 287 content for contraceptive counselling in Canadian bariatric surgery clinics. We identified three  
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26 288 distinct topics that our participants felt contraceptive counselling in bariatric surgery clinics should  
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28 289 encompass: information explaining the reasons for and duration of the need for contraception post-  
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30  
31 290 operatively, education on which contraceptive methods are safe and available, and a discussion  
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33 291 surrounding changes to gynecologic health, including increasing fertility after bariatric surgery.  
34  
35 292 This is similar to other survey-based research in bariatric surgery, where in one study 42% of  
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38 293 individuals choosing bariatric surgery reported that they wished that the contraceptive counselling  
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40 294 they received was more in depth.(12) Adequate contraception counselling consists of more than  
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42 295 listing available methods. Evidence from the broader population suggests that to improve  
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44 296 contraceptive counselling experiences and maximize uptake it is critical for patients to have  
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47 297 information on side effects/risks, an interpretable discussions of efficacy, and to review any  
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49 298 misperceptions about low fertility.(16) Our three identified topics fit into this discussion framework.  
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3 300 Our findings suggest that patient participants recognized HCPs were making assumptions about  
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5 301 who should be counselled on contraception based on a variety of factors. Previous non-Canadian,  
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8 302 survey based studies have established a lack of routine contraception counselling occurring in  
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10 303 bariatric surgery clinics as well as a lack of familiarity with the topic among HCPs.(10,17,18) Bias  
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12 304 in medical counselling is a well-documented phenomenon (19–21) and can lead to individuals  
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14  
15 305 having a negative experience of their care (16,22). It has also been shown that individuals who are  
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17 306 more satisfied with their family planning visit are more likely to be using contraception. (23) In our  
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19 307 study, HCPs described personal decision-making processes employed to determine who they would  
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21 308 counsel, despite over-arching clinic policies that all individuals should receive the same  
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24 309 information. By not routinely counselling all individuals, there is a risk that patients are not getting  
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26 310 the information they need to make informed health care decisions, which could lead to less  
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28 311 satisfaction with method of contraception or non-use of any method.  
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33 313 Our analysis also suggests that patient participants have a desire for information to be  
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35 314 communicated in a variety of ways and at various time points in the surgical process. HCPs echoed  
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37  
38 315 the importance of repetition. Similar to other studies, the most common time for counselling to  
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40 316 occur for our participants was during orientation sessions,(12) however information retention can be  
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42 317 challenging in the setting of medical appointments.(24) Consistently covering key topics with each  
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45 318 patient at multiple points throughout the pre- and post-operative process could facilitate individuals  
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47 319 gaining the knowledge needed to make informed health care decisions. Including additional  
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49 320 resources, such as hand-outs, videos, or take-home patient decision aids are all evidence-based  
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51 321 methods of mitigating information overload and improving knowledge retention of medical  
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53 322 information. (25–27)  
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3 323 Building on the evidence generated through our present study, next steps include the creation of  
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5 324 resources tailored to contraceptive counselling in bariatric surgery clinics that could be created in  
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8 325 conjunction with patient participants and HCPs. These resources could then be used to establish  
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10 326 counselling protocols within clinics so that all individuals receive the same information.  
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12 327

### 14 328 Limitations

16  
17 329 As we sampled patients from only three among the thirteen bariatric surgery clinics in Canada, our  
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19 330 results may not reflect experiences of care in other locations. Although our recruitment method and  
20  
21 331 concurrent data collection and analysis strengthen the trustworthiness of our results, patient  
22  
23 332 experiences may differ in other jurisdictions. All interviews were conducted by phone which meant  
24  
25 333 we could not observe participants non-verbal communication, which in turn may have limited our  
26  
27 334 ability to respond reflexively to participants physical cues. However, phone interviews have been  
28  
29 335 found to produce rich data and allow participants to feel more comfortable disclosing sensitive  
30  
31 336 information about their sexual and reproductive health (28). Finally, our sample of HCPs was  
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33 337 limited to physicians and nurses despite invitations to all individuals involved in patient care.  
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### 39 339 Conclusion

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42 340 Our study identified three educational nodes that contraceptive counselling in Canadian bariatric  
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44 341 surgery clinics should address to align with patient and HCPs priorities. These topics are: fertility  
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46 342 and post-operative pregnancy, contraceptive choice, and post-operative changes to gynecologic  
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48 343 health. We found patients and HCPs have a desire for increased resources and a need to address  
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50 344 misinformation on safety and efficacy of contraceptive methods. The results of our study are  
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3 345 adaptable for high-income nations, in particular those with publicly funded health care systems.  
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5 346 Next steps could include engaging patients and HCPs to develop strategies to address these needs.  
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20

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22

23  
24 354 Health Research Institute of British Columbia Women's Hospital of British Columbia.  
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## 28 356 8. Data Sharing Statement

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30 357 The transcripts from our interviews are not available in order to maintain confidentiality of our  
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## 364 References

- 365 1. Obesity: preventing and managing the global epidemic. Report of a WHO consultation.  
366 World Health Organ Tech Rep Ser. 2000;894:i–xii, 1–253. Available from:  
367 <http://www.ncbi.nlm.nih.gov/pubmed/11234459>
- 368 2. Guelinckx I, Devlieger R, Vansant G. Reproductive outcome after bariatric surgery: a critical  
369 review. Hum Reprod Update. 2008 Nov 5;15(2):189–201. Available from:  
370 <http://www.ncbi.nlm.nih.gov/pubmed/19136457>
- 371 3. Shekelle PG, Newberry S, Maglione M, Li Z, Yermilov I, Hilton L, et al. Bariatric surgery in  
372 women of reproductive age: special concerns for pregnancy. Evid Rep Technol Assess (Full  
373 Rep). 2008 Nov;(169):1–51. Available from:<http://www.ncbi.nlm.nih.gov/pubmed/20731480>
- 374 4. Kominiarek MA, Jungheim ES, Hoeger KM, Rogers AM, Kahan S, Kim JJ. American  
375 Society for Metabolic and Bariatric Surgery position statement on the impact of obesity and  
376 obesity treatment on fertility and fertility therapy Endorsed by the American College of  
377 Obstetricians and Gynecologists and the Obesity Society. Surg Obes Relat Dis. 2017;  
378 Available from:  
379 [http://www.sciencedirect.com.libaccess.lib.mcmaster.ca/science/article/pii/S1550728917300](http://www.sciencedirect.com.libaccess.lib.mcmaster.ca/science/article/pii/S1550728917300679)  
380 679
- 381 5. Mechanick JI, Youdim A, Jones DB, Garvey WT, Hurley DL, McMahon MM, et al. Clinical  
382 Practice Guidelines for the Perioperative Nutritional, Metabolic, and Nonsurgical Support of  
383 the Bariatric Surgery Patient—2013 Update: Cosponsored by American Association of  
384 Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic &  
385 Bariatric Surgery. SOARD. 2013;9:159–91. Available from:  
386 <http://dx.doi.org/10.1016/j.soard.2012.12.010>

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53  
54  
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56  
57  
58  
59  
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- 387 6. Davies G AL, Cynthia Maxwell KO, Lynne McLeod TO, Gagnon R, Melanie Basso MQ,  
388 Hayley Bos VB, et al. SOGC CLINICAL PRACTICE GUIDELINE Obesity in Pregnancy;  
389 Available from: <https://sogc.org/wpcontent/uploads/2013/01/gui239ECPG1002.pdf>
- 390 7. Weiss HG, Nehoda H, Labeck B, Hourmont K, Marth C, Aigner F. Pregnancies after  
391 adjustable gastric banding. *Obes Surg*. 2001 Jun 1;11(3):303–6. Available from:  
392 <http://link.springer.com/10.1381/096089201321336647>
- 393 8. Mengesha B, Griffin L, Nagle A, Kiley J. Assessment of contraceptive needs in women  
394 undergoing bariatric surgery. *Contraception*. 2016 Jul 1;94(1):74–7. Available from:  
395 <http://linkinghub.elsevier.com/retrieve/pii/S0010782416000731>
- 396 9. Obesity in Canada. 2011. Available from: [http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-](http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/adult-eng.php#figure-2)  
397 [oac/adult-eng.php#figure-2](http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/adult-eng.php#figure-2)
- 398 10. Chor J, Chico P, Ayloo S, Roston A, Kominiarek MA. Reproductive health counseling and  
399 practices: a cross-sectional survey of bariatric surgeons. *Surg Obes Relat Dis*. 2015  
400 Jan;11(1):187–92. Available from:  
401 <http://linkinghub.elsevier.com/retrieve/pii/S1550728914002342>
- 402 11. Jatlaoui TC, Zapata LB, Curtis KM, Folger SG, Marchbanks PA, Mandel MG, et al.  
403 Healthcare Provider Attitudes Regarding Contraception for Women with Obesity. *J*  
404 *Women’s Heal*. 2017 Jan 31;jwh.2016.5930. Available from:  
405 <http://www.ncbi.nlm.nih.gov/pubmed/28140761>
- 406 12. Mengesha BM, Carter JT, Dehlendorf CE, Rodriguez AJ, Steinauer JE. Perioperative  
407 pregnancy interval, contraceptive counseling experiences, and contraceptive use in women  
408 undergoing bariatric surgery. *Am J Obstet Gynecol*. 2018;219(1):81.e1-81.e9.
- 409 13. Morse JM, Barrett M, Mayan M, Olson K, Spiers J. Verification Strategies for Establishing

- 1  
2  
3 410 Reliability and Validity in Qualitative Research. *Int J Qual Methods*. 2002;1(2). Available  
4  
5 411 from: <http://journals.sagepub.com/doi/pdf/10.1177/160940690200100202>  
6  
7  
8 412 14. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful  
9  
10 413 concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport,*  
11  
12 414 *Exercise and Health*. Routledge; 2019.  
13  
14  
15 415 15. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006  
16  
17 416 Jan;3(2):77–101. Available from:  
18  
19 417 <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>  
20  
21  
22 418 16. DEHLENDORF C, KRAJEWSKI C, BORRERO S. Contraceptive Counseling. *Clin Obstet*  
23  
24 419 *Gynecol*. 2014 Dec;57(4):659–73. Available from:  
25  
26 420 <http://www.ncbi.nlm.nih.gov/pubmed/25264697>  
27  
28  
29 421 17. Jatlaoui TC, Cordes S, Goedken P, Jamieson DJ, Cwiak C. Family planning knowledge,  
30  
31 422 attitudes and practices among bariatric healthcare providers. *Contraception*. 2016;93:455–62.  
32  
33 423 Available from: [http://www.contraceptionjournal.org/article/S0010-7824\(15\)00707-6/pdf](http://www.contraceptionjournal.org/article/S0010-7824(15)00707-6/pdf)  
34  
35  
36 424 18. Mengesha B, Griffin L, Nagle A, Kiley J. Assessment of contraceptive needs in women  
37  
38 425 undergoing bariatric surgery. *Contraception*. 2016;94(1):74–7.  
39  
40 426 19. WUSTL Choice Project. Which birth control method is right for you?. Dec 3. 2012.  
41  
42 427 Available from:  
43  
44 428 [https://www.youtube.com/watch?v=u9SHoy1C3tU&index=2&list=PLg4ik20UZ7sVsEyq-](https://www.youtube.com/watch?v=u9SHoy1C3tU&index=2&list=PLg4ik20UZ7sVsEyq-K3nc6xNEVqBml8OY)  
45  
46 429 [K3nc6xNEVqBml8OY](https://www.youtube.com/watch?v=u9SHoy1C3tU&index=2&list=PLg4ik20UZ7sVsEyq-K3nc6xNEVqBml8OY)  
47  
48  
49 430 20. Linton A, Hammond C. Contraception Counseling in the Digital Age. *Semin Reprod Med*.  
50  
51 431 2016 Mar 4;34(03):133–8. Available from: [http://www.thieme-](http://www.thieme-connect.de/DOI/DOI?10.1055/s-0036-1571439)  
52  
53 432 [connect.de/DOI/DOI?10.1055/s-0036-1571439](http://www.thieme-connect.de/DOI/DOI?10.1055/s-0036-1571439)  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 433 21. van Ryn M, Burke J. The effect of patient race and socio-economic status on physicians'  
4 perceptions of patients. *Soc Sci Med*. 2000 Mar;50(6):813–28. Available from:  
5 434  
6  
7  
8 435 <http://www.ncbi.nlm.nih.gov/pubmed/10695979>  
9  
10 436 22. Harrison DD, Cooke CW. An elucidation of factors influencing physicians' willingness to  
11 perform elective female sterilization. *Obstet Gynecol*. 1988 Oct;72(4):565–70. Available  
12 437  
13 from: <http://www.ncbi.nlm.nih.gov/pubmed/3419736>  
14 438  
15  
16  
17 439 23. Forrest JD, Frost JJ. The family planning attitudes and experiences of low-income women.  
18  
19 440 *Fam Plann Perspect*;28(6):246–55, 277. Available from:  
20  
21 441 <http://www.ncbi.nlm.nih.gov/pubmed/8959414>  
22  
23  
24 442 24. Langewitz W, Ackermann S, Heierle A, Hertwig R, Ghanim L, Bingisser R. Improving  
25 patient recall of information: Harnessing the power of structure. *Patient Educ Couns*.  
26 443  
27 2015;98(6):716–21.  
28 444  
29  
30  
31 445 25. Pazol K, Zapata LB, Dehlendorf C, Malcolm NM, Rosmarin RB, Frederiksen BN. Impact of  
32  
33 446 Contraceptive Education on Knowledge and Decision Making: An Updated Systematic  
34  
35 447 Review. Vol. 55, *American Journal of Preventive Medicine*. Elsevier Inc.; 2018. p. 703–15.  
36  
37  
38 448 26. Friedman AJ, Cosby R, Boyko S, Hatton-Bauer J, Turnbull G. Effective teaching strategies  
39 and methods of delivery for patient education: A systematic review and practice guideline  
40 449  
41 recommendations. In: *Journal of Cancer Education*. 2011. p. 12–21.  
42 450  
43  
44  
45 451 27. French RS, Wellings K, Cowan FM. How can we help people to choose a method of  
46  
47 452 contraception? The case for contraceptive decision aids. Vol. 35, *Journal of Family Planning*  
48 and Reproductive Health Care. 2009. p. 219–20.  
49 453  
50  
51 454 28. Trier-Bieniek A. Framing the telephone interview as a participant-centred tool for qualitative  
52  
53 455 research: a methodological discussion. *Qual Res*. 2012 Dec 11;12(6):630–44. Available

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456 from: <http://journals.sagepub.com/doi/10.1177/1468794112439005>

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Table 1: Patient participant Demographics

Age	n (%)
<i>20-29</i>	3 (19)
<i>30-39</i>	6 (37)
<i>40-45</i>	7 (44)
Type of Surgery Received	
<i>Roux-en-Y Gastric Bypass</i>	11 (69)
<i>Sleeve Gastrectomy</i>	5 (31)
Education	
<i>Grade 12 or below</i>	3 (19)
<i>University/college degree or more</i>	13 (81)

Note: not all participants responded to all questions

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Table 2: Health Care Professional Demographics

Area of practice	n (%)
<i>Eastern</i>	0
<i>Central</i>	6 (55)
<i>Western</i>	4 (36)
Role in clinic	
<i>Surgeon</i>	2 (18)
<i>Physician (non-surgeon)</i>	2 (18)
<i>Nurse</i>	7 (64)
Primary Surgery Performed in Clinic	
<i>Roux-en-Y Gastric Bypass</i>	7 (63)
<i>Sleeve Gastrectomy</i>	3 (27)

Note: not all participants responded to all questions

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### **Contributors statement**

BD, SM, WN, RR and BF conceived the idea. DH, BZ and BK provided area expertise and revised the study protocol. BD and SM completed data analysis. All authors provided critical feedback and helped shape the research, analysis and manuscript

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