

1 **Title page**

2 **Pelvic Organ Prolapse and Uterine Preservation: A survey of female gynaecologists (POP-**
3 **UP survey)**

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70

71 **Abstract**

72 **Background:** The aim of this study was to explore the personal views of female gynecologists
73 regarding the management of POP with a particular focus on the issue of uterine sparing
74 surgery.

75

76 **Methods:** A questionnaire based survey of practicing female gynaecologists in the Czech
77 Republic, Slovenia and Slovakia.

78

79 **Results:** A total of 140 female gynaecologists from 81 units responded to our questionnaire.
80 The majority of respondents stated they would rely on a urogynecologist to aid them with
81 their choice of POP management options. The most preferred options for POP management
82 were sacrocolpopexy and physiotherapy. Almost 2/3 of respondents opted for a
83 hysterectomy together with POP surgery, if they were menopausal, even if the anatomical
84 outcome was similar to uterine sparing POP surgery. Moreover, 81.4% of respondents, who
85 initially opted for a uterine sparing procedure, changed their mind if the anatomical success
86 of POP surgery with concomitant hysterectomy was superior. Discussing uterine cancer risk
87 in relation to other organs had a less significant impact on their choices.

88

89 **Conclusions:** The majority of female gynecologists in our study opted for hysterectomy if
90 they were postmenopausal at the time of POP surgery. However, variation in information
91 provision had an impact on their choice.

92 **Trial registration: not included**

93

94 **Keywords:** Preference, survey, attitude, prolapse, hysterectomy, sparing surgery

95 **Background**

96 One in 9 women undergo a form of reconstructive surgery for pelvic organ prolapse
97 (POP) during the course of their life and this is expected to increase with the prolongation in
98 life expectancy [1]. With improving operative safety and anaesthetic techniques, such
99 surgical procedures are more frequently performed on perimenopausal and postmenopausal
100 women [2-5]. Indeed, in a study by Kalis et al. [6], 108 (89.3%) of 121 women undergoing
101 laparoscopic sacrocolpopexy were > 50 years. Until recently, vaginal hysterectomy was the
102 most common operation in POP management [7,8]. The main proposed reasons for removal
103 of the uterus were to obtain access to the supporting pelvic structures and/or to reduce the
104 size of the prolapsed mass [9]. Nevertheless, the uterus itself seems to play only a passive
105 role in the aetiology of prolapse [10,11] and therefore its removal without a thorough
106 discussion with the patient, about the pros and cons of doing so, may be considered
107 clinically substandard and unethical as it disregards the women's autonomy and basic right
108 of informed choice [12-14]. This issue is exacerbated by the paucity of long-term data on the
109 psychological impact of hysterectomy on women [15].

110

111 Several studies [14,16,17] have explored women views about the issue of uterine
112 preservation versus concomitant hysterectomy at the time of reconstruction procedures for
113 POP. The heterogeneity in these studies' findings is not unexpected given the impact of
114 several factors including the individual's values, cultural beliefs, level of education, ethnicity,
115 age and family pressure [16,18-20]. However, in these studies the target population did not
116 specifically have prior medical knowledge hence their decision could have been biased not
117 only by the information provision but rather by how they interpret such information. This is
118 particularly relevant because, in essence, they are making a decision to remove a healthy

119 organ based on projected assumed risks [14,16,21]. In order to mitigate the risk of such bias
120 while ensuring that the woman's perspective is taken into account, we decided to target a
121 cohort of women with specialist knowledge in the field of gynecology in general and
122 urogynecology in particular. In this study we undertook a survey of female gynaecologists
123 from different European countries with the aim of exploring their personal views about
124 different aspects of management of POP. We also wanted to particularly focus on their
125 choice of whether to preserve the uterus or not in response to different clinical scenarios.

126

127

128 **Methods**

129 The study was undertaken between January and December of 2018 and involved 120
130 departments of Gynecology and Obstetrics located in the Czech Republic, Slovenia and
131 Slovakia. A national coordinating centre (NCC) located in each of the participating countries
132 managed the study elements in that country. The NCCs were based at the Departments of
133 Gynecology and Obstetrics Safarik’s University and L. Pasteur Teaching Hospital (SULPTH),
134 University Hospital in Pilsen (UHP) and University Medical Centre Ljubljana (UMCL) in
135 Slovakia, Czech Republic and Slovenia respectively. Anonymised questionnaires were sent
136 by email from the lead investigator of each of the NCCs (PU, VK, MB) to the heads of
137 departments of all the obstetrics and gynaecology units in their relevant countries. They
138 were asked to cascade them as hard copies to practitioners who fulfilled a set of a priori
139 specifications. Completed questionnaires were returned by post to the relevant NCC for data
140 extraction. The study received ethical approval from the relevant ethics committee at Ethics
141 committee at L. Pasteur Teaching Hospital in Košice in Slovakia (No 2020/EK/04024). While
142 UHP in Czech Republic (waiver- April 30, 2020) and UMCL in Slovenia (waiver – April 22,
143 2018) committees waived ethical approval because of the nature of the study.

144

145 **Participants, inclusion and exclusion criteria**

146 Participants were hospital-based female specialist obstetricians and gynaecologists
147 who have completed their postgraduate training and working as generalists or subspecialists
148 in obstetrics and gynaecology.

149

150 **Variables**

151 We used a bespoke questionnaire based on previously published study exploring
152 women's perception of hysterectomy and attitudes towards uterine preservation at the time
153 of POP reconstructive surgery [16]. The questionnaire was distributed in the native language
154 of each of the participating countries (the questionnaires in the participating countries' native
155 languages are available on request) Demographic details collected included participants'
156 age, country of residence, type of hospital they work at, sub-specialisation or main area of
157 special interest (materno-fetal medicine, oncogynecology, urogynecology, reproductive
158 medicine, others, no sub-speciality). We also asked about future fertility plans using a 4-
159 point Likert scale ranging from "not at all" to "I definitely will".

160

161 Participants were asked to assume they are postmenopausal healthy women, with no
162 prior major gynaecological surgeries, suffering from a significant POP involving all
163 compartments (i.e. anterior, apical, posterior), participants were then asked to respond to a
164 set of questions and hypothetical scenarios to explore the following issues:

- 165 • Resources or people they would consult to aid them with the decision making about
166 the best treatment for their POP.
- 167 • Their preferred type of management for their POP.
- 168 • The importance of the uterus to them.
- 169 • Potential factors that can affect their decision to have a hysterectomy.
- 170 • How important is anatomical outcome on their choice about concomitant
171 hysterectomy with POP surgery.
- 172 • Would presenting life-long risk of uterine cancer in the context of other organ
173 cancers impact their decision about choice of procedure?

174

175 **Statistical methods**

176 Sample characteristics were summarized using descriptive statistics. Where relevant
177 exact McNemar, Fischer tests and chí-squared test were performed using IBM SPSS
178 Statistics 21.0 and Stata/SE 11.1 (StataCorp LP, College Station, TX, USA) statistical
179 softwares. The cut-off for statistical significance was set at $p < .05$.

180

181 **Results**

182 **Sample description**

183 Of the 120 approached departments, questionnaires were returned from 81 (67.5%)
184 of them. A total of 140 female gynaecologists completed the questionnaire with a mean age
185 of 38.7 years (range 28 – 67 years. Of these, 84 (60.0%), 31 (22.1%) and 25 (17.9%) were
186 from the Czech Republic, Slovakia and Slovenia respectively. Participants were based at
187 university or teaching hospitals (n=82, 58.6%), regional hospitals (n=39, 27.8%) and district
188 hospitals (n=19, 13.6%). All participants were fully specialised gynaecologists, of these 23
189 (16.4%) were feto-maternal, 16 (11.4%) urogynecology and 4 (2.9%) oncogynecology
190 subspecialists. With regard to future fertility plans, 49 participants (35.0%) stated that they
191 completed completed their family while the remaining 91 (65.0%) either partially or not at
192 all.

193

194 **Information provision**

195 Based on the requested assumed scenario that participants were healthy,
196 postmenopausal, with no prior gynaecological surgeries and suffering with a significant POP
197 involving all compartments, relying on a urogynaecologists as a source of information was
198 chosen by 130 (92.9%) of the participants as the main information resource. While searching
199 the medical literature, consulting their partner or colleague were chosen by 54 (38.6%), 24
200 (17.1%) and 14 (10.0%) of the respondents respectively. Ten participants only have indicated
201 that they would also seek assistance from online resources (n=6, 4.3%), a female friend (n=3,
202 2.1%) or an oncogynecologist (n=1, 0.7%).

203

204 **Management preference**

205 Using the same assumption above, participants were asked to rate their likelihood of
206 choosing different management options for POP on a 4-point Likert scale which was later
207 dichotomised to “yes”, for definitely and likely, and “no”, for not likely and not at all (Figure
208 1). The options favoured by respondents, when combining definitely and likely responses,
209 were sacrocolpopexy and physiotherapy. While a Manchester repair, no treatment,
210 colpocleisis, and the use of a pessary were the least favoured amongst female gynecologists.

211

212 **Figure 1**

213

214 **Factors impacting decision about hysterectomy**

215 Participants were asked about their views regarding the importance of various
216 factors on their decision to opt for or decline a hysterectomy, during POP reconstructive
217 surgery, if both were feasible options. Professionals’ opinion and risk of surgical
218 complications were considered important by 100% and 99% of respondents respectively.
219 The list of factors assessed ranked in order of their importance based on participants’
220 responses are demonstrated in Figure 2.

221 **Figure 2**

222 **Personal perception of the uterus and choice of surgery**

223 When asked about their personal perception about the importance of the uterus for
224 their sense of self, 79/136 (58.1%) of respondents did not support this view. Of the 57
225 female gynecologists considering the uterus to be important for their sense of self, 33
226 (57.9%) said they would opt for a uterine sparing surgery than a hysterectomy compared to
227 18 of the 79 (22.8%) who did not support this view (OR=4.66, $p<0.05$).

228

229 **Impact of clinical outcome and risk of cancer on choice of surgery**

230 When participants were asked about choice of surgery if there was evidence to
231 suggest that anatomical outcomes following POP surgery with uterine sparing were similar
232 to concomitant hysterectomy, 82/125 (65.6%) still opted for a concomitant hysterectomy.
233 When asked about their choice if there was evidence that uterine sparing is associated with
234 slightly worse outcomes, 35/43 (81.4%) who initially opted for uterine sparing changed their
235 mind to a concomitant hysterectomy (Figure 3).

236

237 **Figure 3**

238

239 When information on actual background potential risk of uterine cancer in relation to other
240 types of cancers in females was provided while still assuming equal effectiveness of uterine
241 sparing and concomitant hysterectomy POP procedures, 5 (6.1%) women changed their
242 decision from hysterectomy to uterus sparing surgery and 6 (13.9%) women from uterus
243 sparing surgery to hysterectomy (Figure 4). Additionally, 122 (87.1%) respondents stated
244 that they would need to know the recent cervical screening result and 93 (66.4%) to have a
245 transvaginal ultrasound assessment of their endometrial thickness preoperatively to enable
246 them to make a well informed decision regarding hysterectomy or uterus sparing procedure.
247 The choice of surgery depending on the different scenarios by country is presented in Table
248 1.

249 **Figure 4**

250 **Table 1**

251

252 **Discussion**

253 *Summary of results* - This study presents personal views of female gynecologists on
254 the issue of POP management with a particular focus on their choice of whether to preserve
255 the uterus or not in response to different hypothetical clinical scenarios. The vast majority of
256 our study participants stated they would rely on a urogynecologist as the main source of
257 information to aid them with their choice of POP management options while, 4.3% and 0.7%
258 only, would use online resources or seek the advice of an oncogynecologist, respectively, to
259 help them make a decision. The most preferred options for POP management were
260 sacrocolpopexy and physiotherapy. Almost 2/3 of female gynaecologists who responded to
261 our questionnaire opted for a hysterectomy together with POP surgery, if they were
262 menopausal, even if the anatomical outcome was similar to uterine sparing POP surgery.
263 Moreover, 81.4% of respondents, who initially opted for a uterine sparing procedure,
264 changed their mind if the anatomical success of POP surgery with concomitant hysterectomy
265 was superior. Significantly more respondents changed their mind from uterine preservation
266 to hysterectomy when asked to consider that uterine sparing might be associated with a
267 slightly more negative clinical outcome compared to when asking them to consider their
268 uterine cancer risk (8/43 vs 35/43, $p=0.000$).

269

270 *Comparison to current literature* - The majority (65.6 %) of female gynecologists
271 would opt for hysterectomy if they were postmenopausal at the time of POP surgery, a
272 proportion higher than that reported from previous women surveys whose participants
273 were not recruited because of a particular professional background [16,17].

274 Limited research exists that assesses patient knowledge of POP treatment options and
275 attitudes regarding hysterectomy and its association with their perception of sexuality,
276 femininity and womanhood [18,22,23]. Nevertheless, it is the general opinion that the two
277 crucial determinants of the patients' choice of POP surgical technique are the woman's
278 personal views about uterine preservation and the surgeon's procedure preference based on
279 their training and expertise [24,25]. It is interesting to see that the majority of specialist
280 female gynecologists seem to prefer a hysterectomy even when quoted similar anatomical
281 success or when highlighting the proximity in life-time uterine cancer risk to other organs.
282 The impact of this issue is more relevant when considering that our respondents are
283 clinicians who can be counselling patients rather than as a woman considering her own
284 options.

285

286 Our findings concur with other groups, [14,26,27], where we demonstrated that the
287 issues of the impact of a hysterectomy on femininity, sex drive and sexual satisfaction, either
288 for the woman or her partner, did not seem to be a priority in the decision-making process
289 regarding hysterectomy at time of POP surgery. However, the impact of hysterectomy on
290 clinical outcomes seemed to be an important factor when choosing the optimal procedure.
291 Our findings were similar to those of Korbly et al. [14] and van IJsselmuiden et al. [17] where
292 the number of women opting for uterine sparing surgery significantly reduced if this was
293 associated with slightly inferior anatomical outcomes (34.4% to 8.8 %; OR 11.6, p<.001).
294 Therefore, there is a need for robust information on POP surgery long-term outcome in
295 relation to whether the uterus was preserved or removed. Moreover, it is also prudent to
296 explore alternative techniques and modifications that can overcome any variation in

297 outcome [28]. This will ensure that women have two realistic and equal options to choose
298 from.

299

300 *Strengths and limitations* - We appreciate that our study has some limitations including the
301 inability to know the exact number of specialists who received the questionnaire to be able
302 to calculate an accurate response rate. Therefore, it is difficult to assess the risk of selection
303 bias in this survey. However, the fact that our participants are specialised professionals
304 working in different types of units from 3 different countries is reassuring that our sample is
305 representative of the views of female gynecologists currently working in Central Europe.
306 Moreover, the mean age of our participants was 38.7 years and several of them have not
307 completed their families, yet they were asked to base their responses on the hypothetical
308 assumption that they were postmenopausal. It could be argued that the views presented in
309 this study might not be a true reflection of what postmenopausal female gynecologist would
310 do. Nonetheless, it still reflects, to a large extent, what their perception is about the optimal
311 modality of management for a postmenopausal healthy woman. This is of particular
312 importance because of the potential impact this might have on others if we consider their
313 roles as clinicians and trainers. In contrast, the fact that this is the first survey exploring
314 views of female gynecologists about POP management and their preferences about uterine
315 sparing or not is a major strength to our work.

316

317

318

319 **Conclusion**

320 Concomitant hysterectomy rather than uterine sparing seems to be the preferred
321 option for the majority of female gynaecologists if they were to have POP reconstructive
322 surgery. Urogynecologists were deemed the most important resource for our respondents
323 when making a decision about the optimal management of their POP. Moreover,
324 postoperative clinical outcome was an important determinant in their decision about the
325 uterine fate. Therefore, there is an urgent need for information about the short and long-
326 term clinical and patient-reported outcomes of uterine sparing versus concomitant
327 hysterectomy POP surgery to enable women make an informed choice of the best
328 management for them.

329

330 **List of abbreviation**

331 POP – Pelvic Organe Prolapse

332 NCC – National Coordinating Center

333 SULPTH – Safarik 's University and L. Pasteur Teaching Hospital

334 UHP – University Hospital in Pilsen

335 UMCL – University Medical Center Ljubljana

336

337 **Declarations**

338 **Ethics approval and consent to participate -**

339 The study received ethical approval from the relevant ethics committee

- 340 1. Slovakia - Ethics Committee L. Pasteur Teaching Hospital in Slovakia (EK
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- 342 2. Czech Republic - University Hospital in Pilsen (UHP - waiver, April 30, 2020)
343 3. Slovenia - University Medical Centre Ljubljana (UMCL - waiver, April 22, 2018)

344 Due to the anonymous nature of the survey and the ability of participants to elect to
345 respond to the survey or not, completion and return of the questionnaire was considered an
346 implied consent to participate.

347 **Consent for publication – Not applicable**

348 **Availability of data and materials –** The datasets used and/or analysed during the current
349 study are available from the corresponding author on reasonable request.

350 **Competing interests**

351 The authors declare no competing of interest. The funders had no role in the design of
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368 K.V.,I.K.M, writing -review and editing – U.P,K.V., I.K.M., B.M., project administration – U.P.,
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453 List of Legends

454 **Figure 1 Personal management preferences for POP**

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458 Number of responders ranged from 126 - 134

460 **Figure 2 Importance of factors for decision to undergo or refuse hysterectomy**

461
462
463 Number of responders ranged from 133 - 138

464 **Figure 3 Differences in decision about POP management (hysterectomy vs. uterus** 465 **sparing surgery) based on expected outcomes (n=125)**

467 **Figure 4 Differences in decision about POP management (hysterectomy vs. uterus** 468 **sparing surgery) based on cancer risk (n=125)**

469

470 **Table 1 Impact of clinical outcome and risk of cancer on choice of surgery by**
471 **country**

472

473 SK - Slovakia, CZ – Czech Republic, SL – Slovenia, P – Chí-squared test, $p < .05$

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