Can personalized digital counseling improve consumer search for modern contraceptive methods? Supplementary Materials

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Table S1: Client characteristics.

	(1) **Pilot Data** Mean/(SD)	(2) **FUP Data** Mean/(SD)
Age	29.27(7.03)	29.33(6.59)
Adolescent	0.09	0.06
BMI	27.54(4.86)	27.06(4.85)
Unmarried couple cohabiting	0.37	0.35
Married	0.33	0.35
Education: Tertiary	0.42	0.47
Education: Secondary	0.23	0.24
Education: Primary/Lower sec.	0.33	0.28
Salaried employee	0.32	0.35
Self-employed	0.21	0.12
Student	0.21	0.16
Pregnancies, total	3.69(2.33)	3.57(2.28)
Children alive today	2.75(1.81)	2.66(1.74)
Ever gave birth (live or still)	0.94	0.94
Gave birth <=3 months	0.56	0.61
Wants no more children	0.25	0.24
Wait 1 to 3 yrs before next preg.	0.36	0.40
Wait >3 years before next preg.	0.39	0.37
Currently using a LARC	0.03	0.04
Currently using a SARC	0.04	0.02
Currently using other method	0.05	0.05
MiM	0.49	0.54
N	784	1,228

Note: This table shows client characteristics in the study sample (Pilot sample), the follow-up interview sample - which was recruited during the adaptive phase of the study, immediately after the pilot -, and the DHS 2018 Yaoundé Stratum.

Table S2: Method mix.

	(1)	(2)	(3)	(4)	(5)	(6)
	Current method		**Method in mind**		**Method adopted**	
	N	%	N	%	N	%
None	689	87.88	342	43.62	242	30.87
LARC	26	3.32	358	45.66	341	43.49
IUD	3	0.38	99	12.63	101	12.88
Implant	23	2.93	259	33.04	240	30.61
SARC	29	3.70	62	7.91	36	4.59
Pill	11	1.40	18	2.30	17	2.17
Injectable	18	2.30	44	5.61	19	2.42
Other	40	5.10	22	2.81	165	21.05
LAM	1	0.13	5	0.64	153	19.52
Male/Female condoms	36	4.59	8	1.02	11	1.40
Traditional or other	3	0.38	9	1.15	1	0.13
Total	784	100.00	784	100.00	784	100.00

Notes: This table shows the method mix amongst the clients who visit the hospital included in the study sample; columns 1 and 2 show the number and fraction of clients who are currently using each method at the time of their first consultation; columns 2 and 3 shows which method the 442 clients had in mind during their consultation, i.e. the method they wanted to adopt or renew without discussing other methods (see Figure 1); column 5 and 6 show the method that was ultimately adopted by the clients, noting that LAM and condoms can be used concurrently with other methods and are thus counted as the method adopted when they are used as the primary method of contraception; the IUD refers to the copper IUD, LAM refers to lactational amenorrhea method, traditional method or other encompasses all other methods and primarily consists of the calendar method and coitus interruptus method.

Table S3: Balance table over LARC prices

	(1) **Control**	(2) **LARC price: Discounted**	(3)
	Mean/(SD)	Mean/(SD)	Diff 1-2 (p-value)
Dep.: Family Planning	0.59	0.57	0.61
Age	28.79/(7.44)	29.39/(6.92)	0.34
Adolescent	0.10	0.08	0.39
BMI	27.33/(4.92)	27.59/(4.85)	0.56
Single	0.35	0.29	0.14
Unmarried couple cohabiting	0.34	0.38	0.40
Married	0.31	0.34	0.55
Education: Tertiary	0.38	0.43	0.31
Education: Secondary	0.27	0.22	0.20
Education: Primary/Lower sec.	0.35	0.32	0.59
Education: None	0.00	0.03	0.04
Salaried employee	0.27	0.33	0.16
Self-employed	0.19	0.21	0.45
Student	0.24	0.20	0.28
Domestic activities	0.26	0.21	0.27
Pregnancies, total	3.66/(2.45)	3.70/(2.30)	0.86
Children alive today	2.63/(1.80)	2.78/(1.81)	0.35
Ever gave birth (live or still)	0.94	0.94	0.87
Wants no more children	0.22	0.26	0.35
Wait 1 to 3 yrs before next preg.	0.40	0.35	0.21
Wait >3 years before next preg.	0.37	0.39	0.70
Currently using a LARC	0.03	0.04	0.56
Currently using a SARC	0.03	0.04	0.72
Currently using other method	0.03	0.06	0.23
Method in mind	0.50	0.49	0.80
Test of joint orthogonality, F-stat			0.89
p-value			0.60
N	156	628	

Notes: the 'Difference' columns show the p-value from a t-test of the difference in means between the two indicated groups; the F-test of joint-orthogonality (F-stat/p-value) tests that all the coefficients are jointly equivalent to zero when regressing the set of variables shown in this table on a group indicator; Standard deviation in parentheses for non-binary variables.

Table S4: Balance table over the counselling style

	(1) **IDM** Mean/(SD)	(2) **SDM** Mean/(SD)	(3) Diff. (p-value)
Dep.: Family Planning	0.50	0.48	0.65
Age	28.67/(7.06)	27.84/(7.18)	0.24
Adolescent	0.11	0.12	0.69
BMI	27.50/(4.69)	27.47/(4.71)	0.94
Single	0.33	0.39	0.18
Unmarried couple cohabiting	0.40	0.37	0.53
Married	0.28	0.24	0.45
Education: Tertiary	0.39	0.37	0.75
Education: Secondary	0.28	0.21	0.14
Education: Primary/Lower sec.	0.32	0.39	0.12
Education: None	0.02	0.03	0.71
Salaried employee	0.28	0.25	0.60
Self-employed	0.20	0.22	0.62
Student	0.25	0.26	0.79
Domestic activities	0.21	0.24	0.54
Pregnancies, total	3.42/(2.38)	3.35/(2.28)	0.76
Children alive today	2.61/(1.84)	2.39/(1.77)	0.23
Ever gave birth (live or still)	0.94	0.92	0.52
Wants no more children	0.19	0.23	0.39
Wait 1 to 3 yrs before next preg.	0.45	0.40	0.32
Wait >3 years before next preg.	0.36	0.37	0.77
Currently using a LARC	0.00	0.01	0.15
Currently using a SARC	0.03	0.03	0.96
Currently using other method	0.02	0.04	0.22
Test of joint orthogonality, F-stat			1.00
p-value			0.46
N	202	197	

Notes: the 'Difference' columns show the p-value from a t-test of the difference in means between the two indicated groups; the F-test of joint-orthogonality (F-stat/p-value) tests that all the coefficients are jointly equivalent to zero when regressing the set of variables shown in this table on a group indicator; Standard deviation in parentheses for non-binary variables.

Table S5: Prices in nearby Health Centers

	(1) **HGOPY**	(2) Hôpital Général	(3) Centre Medical Saint Luc De Ngousso	(4) Centre de Santé Ste Glanie	(5) Centre de Santé Joss	(6) Centre de Santé Human-itaire	(7) Centre de Santé Grace Divine Ngousso
IUD	4000	2500	5000	5000	3000	15000	5000
Implant	4000	2500	5000	7000	5000	7000	5000
Injectable	1250	1000	1500	1500	1500	2000	1500
Pills	1500	500	1000	1000	1000	1000	1000
Removals	0	5000	5000	5000	5000	5000	5000
Consultation	0	500-1000	500-1000	500-1000	500-1000	500-1000	500-1000
Distance to HGOPY (meters)	-	399	3379	2571	1146	982	1605
Walking time (minutes)	-	4.40	27.73	34.25	15.08	12.78	19.70
Driving time (minutes)	-	1.30	8.50	6.90	3.20	2.47	4.58

Notes: This table presents prices of LARCs, SARCs, Removals and Consultation cost in health centers that are close to the Yaoundé Gynaecology, Obstetrics and Pediatrics Hospital (HGOPY); The data was personally collected by a nurse consultant with Family Planning experience; column (1) uses the highest price that was offered to clients during the study at HGOPY; Distance to HGOPY is in meters and is calculated using Gooogle's Distance Matrix API; Walking and driving time are measured using predictive traffic information.

Table S6: Rankings produced by the app's internal algorithm

	(1) Pos. 1	(2) Pos. 2	(3) Pos. 3	(4) Pos. 4	(5) Pos. 5
IUD	0.54	0.31	0.08	0.07	0.00
Implant	0.33	0.30	0.24	0.13	0.00
Pill	0.05	0.24	0.38	0.25	0.18
Injectable	0.00	0.00	0.18	0.44	0.78
LAM	0.08	0.16	0.12	0.11	0.04
Total	1.00	1.00	1.00	1.00	1.00

Notes: This table presents the positions produced by the app's internal algorithm; Each column represents the percent of occurrence of each contraceptive within each position.

Table S7: Impacts Over Time – Method at 16 week follow-up survey

Adopted method during counselling	Method at 16 week follow-up survey							
	Neither		LARC		SARC		Total	
	N	%	N	%	N	%	N	%
Neither	503	78.3	110	17.1	29	4.5	642	100.0
LARC	45	9.1	451	90.9	0	0.0	496	100.0
SARC	13	39.4	4	12.1	16	48.5	33	100.0
Total	561	47.9	565	48.2	45	3.8	1,171	100.0

Notes: The data shown in this table covers a sample of clients enrolled in the adaptive experiment following this study between the 19^{th} of January 2021 and the 29^{th} of June 2022.

Table S8: Quality of care and client satisfaction by counselling style.

	(1) **MiM**	(2) **IDM**	(3) **SDM**	(4) Diff (p-value)
Variable	Mean	Mean	Mean	(2)-(3)
Quality of care index	67.05	67.44	68.87	0.48
Sub-indices and index items				
Method selection	91.54	90.05	93.27	0.18
Asked about desire for another child	0.95	0.93	0.96	
Asked about preferred timing for another child	0.88	0.86	0.90	
Asked about previous FP experience	0.90	0.87	0.91	
Asked about preferred FP method	0.93	0.95	0.96	
Given information about different FP methods	0.92	0.98	0.99	
Effective use	88.97	85.29	89.34	0.26
Told about side effects or problems with selected method	0.88	0.95	0.90	
Told how to manage side effects or problems with selected method	0.88	0.81	0.88	
Told about warning signs for the selected method	0.90	0.80	0.90	
Continuity of care	77.46	78.17	85.80	0.12
Told about possibility of switching to another method	0.77	0.78	0.86	
Audio and Visual Privacy	10.23	16.23	7.07	0.02
Consulted where nobody could see them	0.11	0.16	0.07	
Consulted where nobody could hear them	0.10	0.16	0.07	
Client Satisfaction				
Satisfied with FP services in general	0.89	0.90	0.89	0.86
Satisfied with FP consultation	0.91	0.93	0.94	0.73
Likely to return for FP services	0.92	0.94	0.94	0.87
Obs.	660	183	385	

Notes: The data shown in this table uses data from the 2-week follow-up interviews for the follow-up cohort - i.e. the sample of clients counselled between the 19^{th} of January 2021 and the 29^{th} of June 2022. These clients were enrolled into the study during the adaptive experiment phase, so all estimates are weighted by the inverse probability of assignment of their assigned treatment arm. The 'Diff' column, column 4, shows the p-value from a t-test of the difference in means between the IDM and SDM groups. The quality of care index is calculated following **jain2019validation**, where each sub-index is obtained by averaging over the components within the domain and the overall index is obtained by averaging across the four domain domain indices, equally weighted; the audio and visual privacy index reflects the respectful care domain from Jain et al. The measures of client satisfaction with the services provided indicate the fraction of clients who are satisfied, or very satisfied with FP services and general and with the FP consultation specifically, as well as the clients who are likely, or very likely to return to the study hospital for FP services in the future.

Table S9: Heterogeneity of impacts of price discounts.

	(1)	(2)	(3)	(4)	(5)	(6)
	Department		**Age group**		**Marital status**	
	FP	Mat./Gyn.	Age≥20	Age<20	Mar./Coh.	Single
LARC price: Discounted	0.162	0.128	0.120	0.346	0.113	0.199
	(0.058)	(0.058)	(0.045)	(0.109)	(0.053)	(0.070)
Control mean w/n group	0.402	0.203	0.343	0.125	0.353	0.259
Discount=Full w/n group (p-val.)	0.005	0.028	0.008	0.002	0.034	0.005
Discount=Discount b/w groups (p-val.)	0.672		0.055		0.328	
Obs. in group	448	336	717	67	551	233
Obs.	784		784		784	

Notes: Robust standard error in parentheses; Discounted prices for LARCs were offered at CFA 2,000, 1,000, 150, and free; Discounted prices for SARCs were offered at no cost; all sets of columns show the estimated coefficients for the group-specific impacts of LARC prices estimated from a single regression on the outcome on LARC prices interacted with a group indicator; regressions shown in columns 1 and 2 report results from interacting LARC prices with the department where the client was received as the group indicator, separated as Family Planning and Maternity/Gynecology+others; regressions in columns 3 and 4 use an indicator for the age group; regression in columns 5 and 6 use an indicator for marital status, separated as Married/Cohabiting and Single.

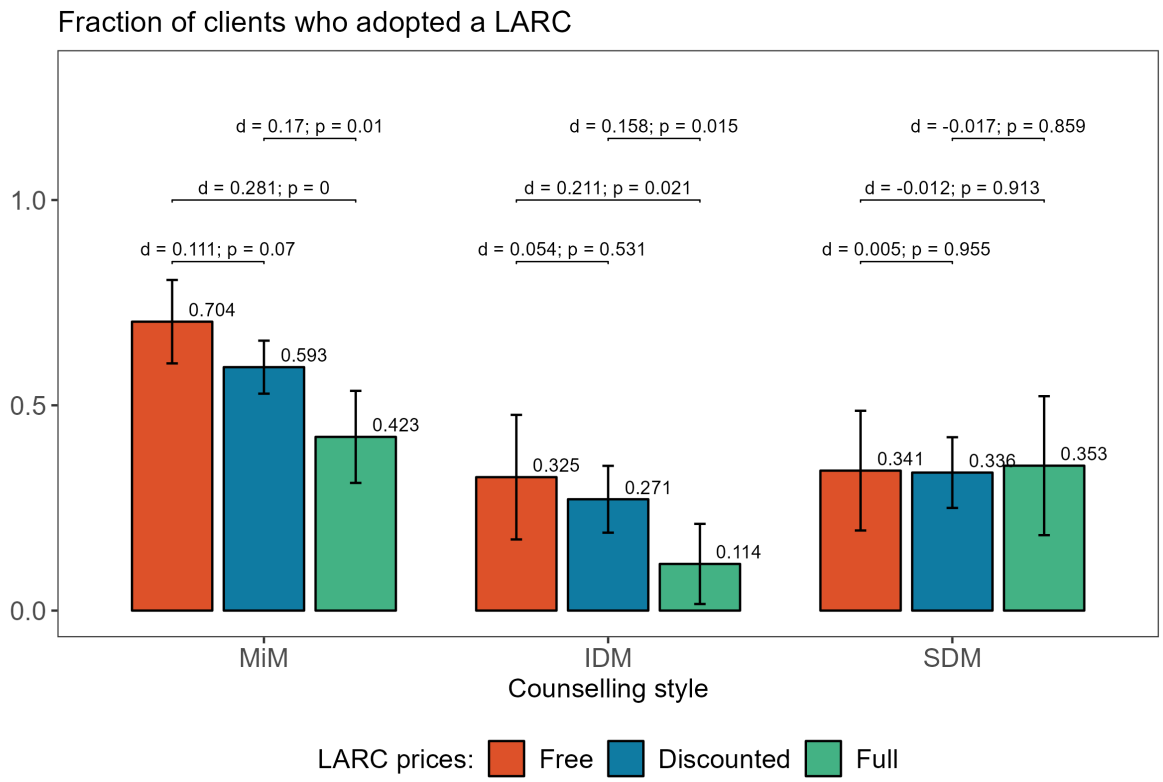

Figure S1: Impact of LARC prices on LARC adoptions. The figure shows the fraction of clients who adopted a LARC during the study period under *Free*, *Discounted*, and *Full* priced LARCs across counseling styles. The lines above the bars show the estimate (d) and p-value (p) from a t-test of the difference in means between the two indicated groups.

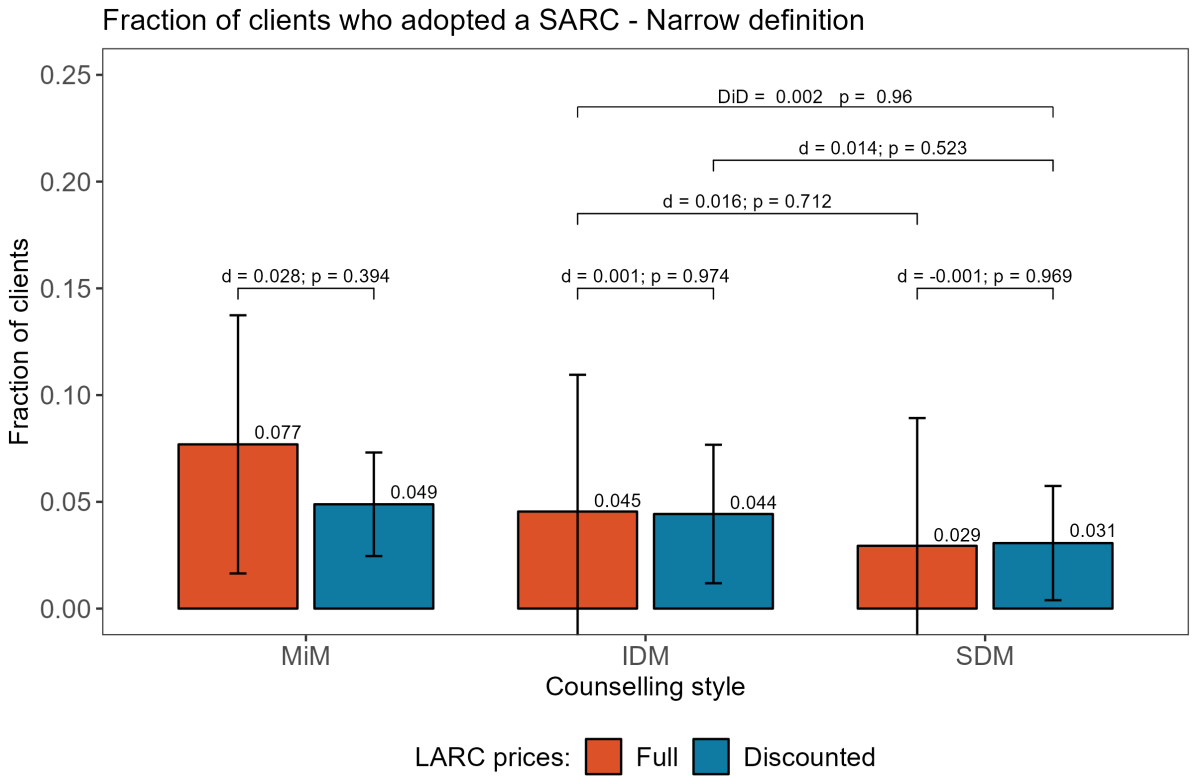

Figure S2: Impact of LARC prices on SARC adoptions. The figure shows the fraction of clients who adopted a SARC under *Discounted,* and *Full* priced LARCs across counseling styles. The "narrow" definitions refers to SARCs as defined in our study and includes the Pill (POP or COC) and the Injectable. The lines above the bars show the estimate (d) and p-value (p) from a t-test of the difference in means between the two indicated groups. The bar labeled *DiD* indicates the difference-in-differences estimate between the two randomized counseling interventions (*IDM-SDM*) and LARC price discounts (*Full-Discounted*).

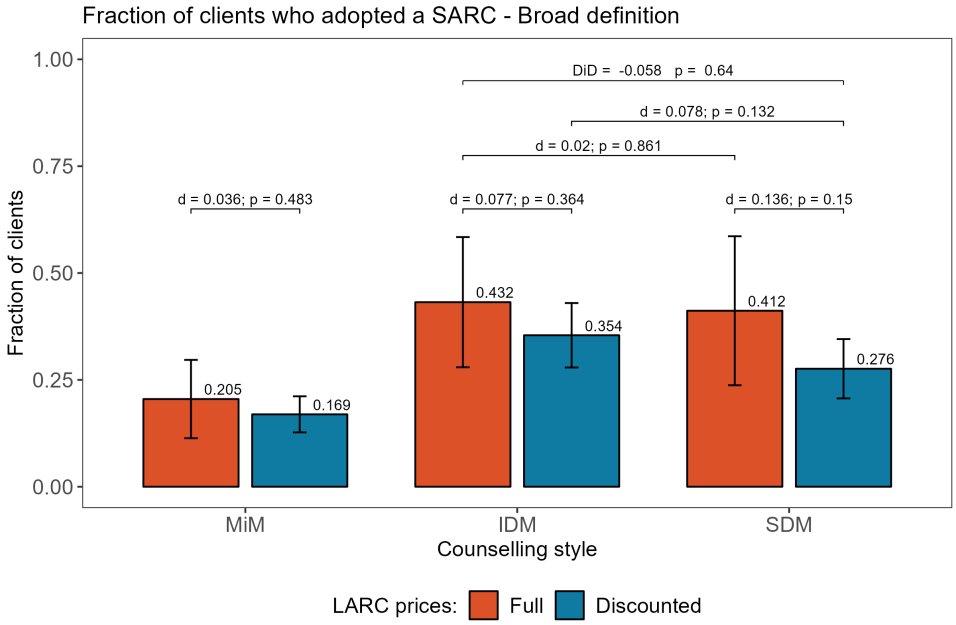

Figure S3: Impact of LARC prices on SARC adoptions. The figure shows the fraction of clients who adopted a SARC under *Discounted*, and *Full* priced LARCs across counseling styles. The "broad" definitions refers to a definition of SARCs which includes the Pill (POP or COC), the Injectable, Condoms, the Standard Days Methods, and Emergency contraception. The lines above the bars show the estimate (d) and p-value (p) from a t-test of the difference in means between the two indicated groups. The bar labeled *DiD* indicates the difference-in-differences estimate between the two randomized counseling interventions (*IDM-SDM*) and LARC price discounts (*Full-Discounted*).

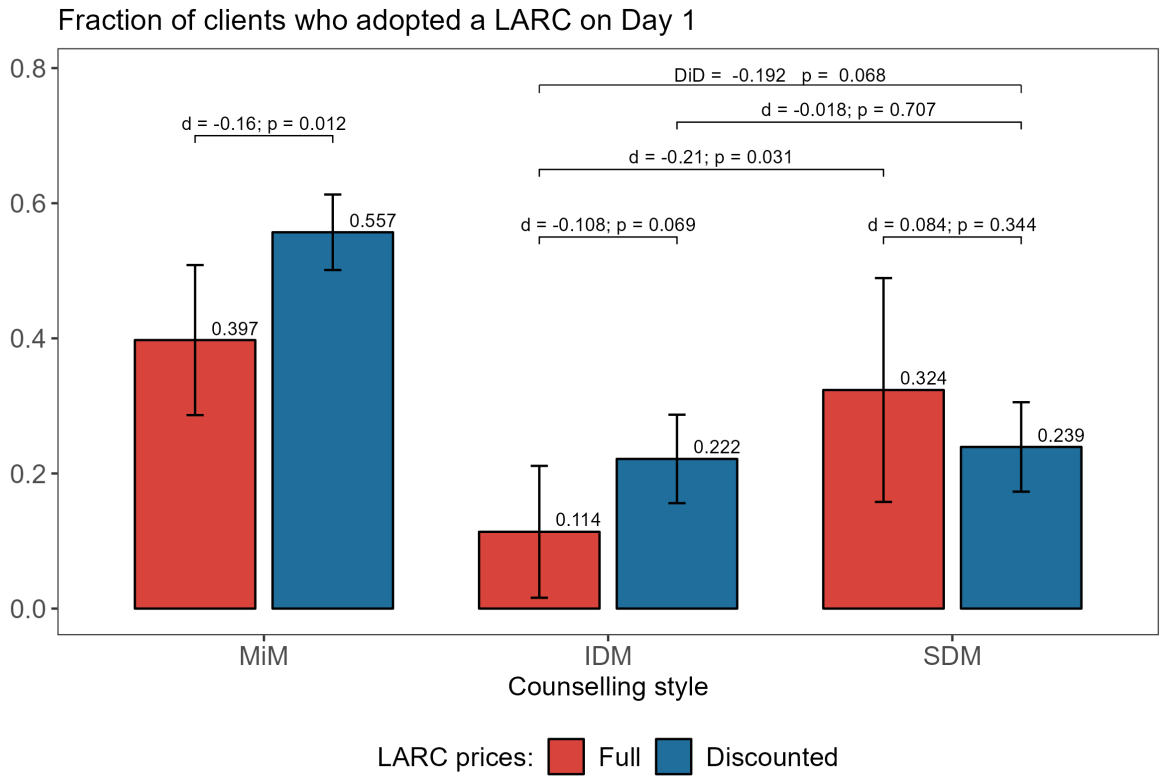

Figure S4: Impact of LARC prices on LARC adoptions, on Day 1. The figure shows the fraction of clients who adopted a LARC on the day of their first counselling session during the study period, *Discounted*, and *Full* priced LARCs across counseling styles. The lines above the bars show the estimate (d) and p-value (p) from a t-test of the difference in means between the two indicated groups. The bar labeled *DiD* indicates the difference-in-differences estimate between the two randomized counseling interventions (*IDM-SDM*) and LARC price discounts (*Full-Discounted*).

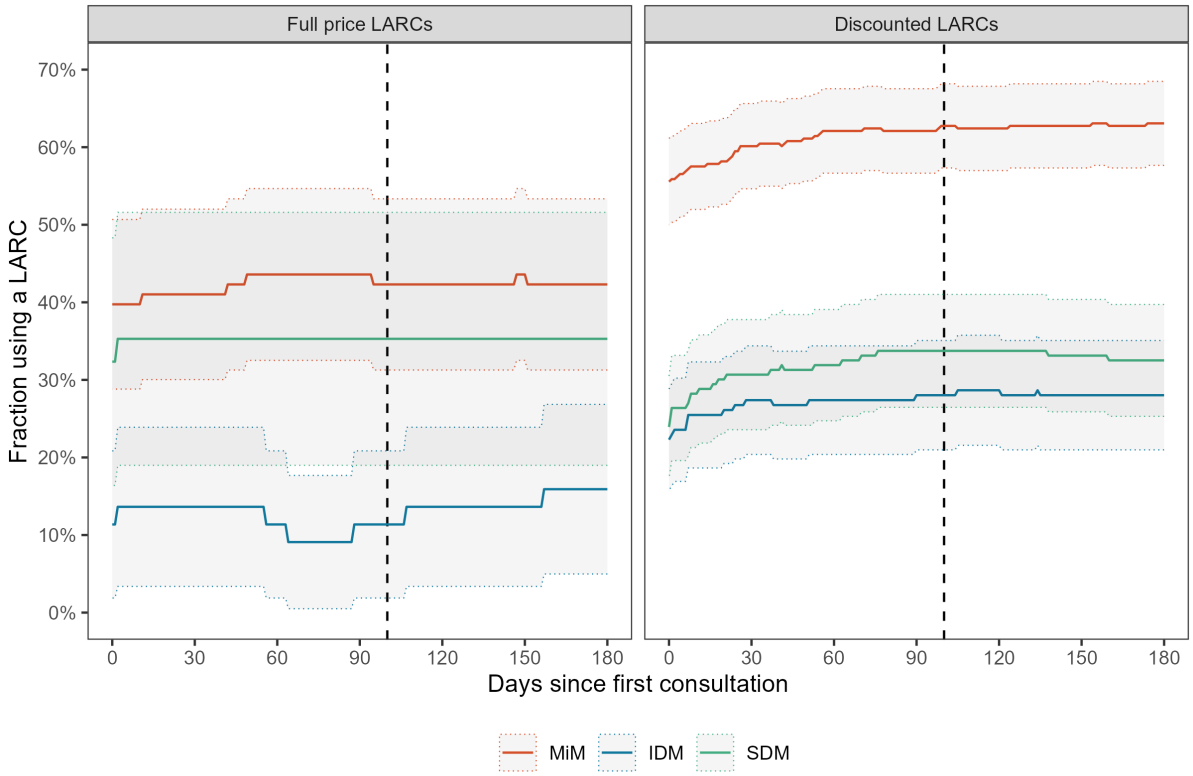

Figure S5: Impact on LARC adoptions over time. The figure shows the share of clients who were using a LARC at any point in time between their first counselling session during the study period and the following 180 days. The data is based on administrative data collected at the hospital, tracking each client across visits.

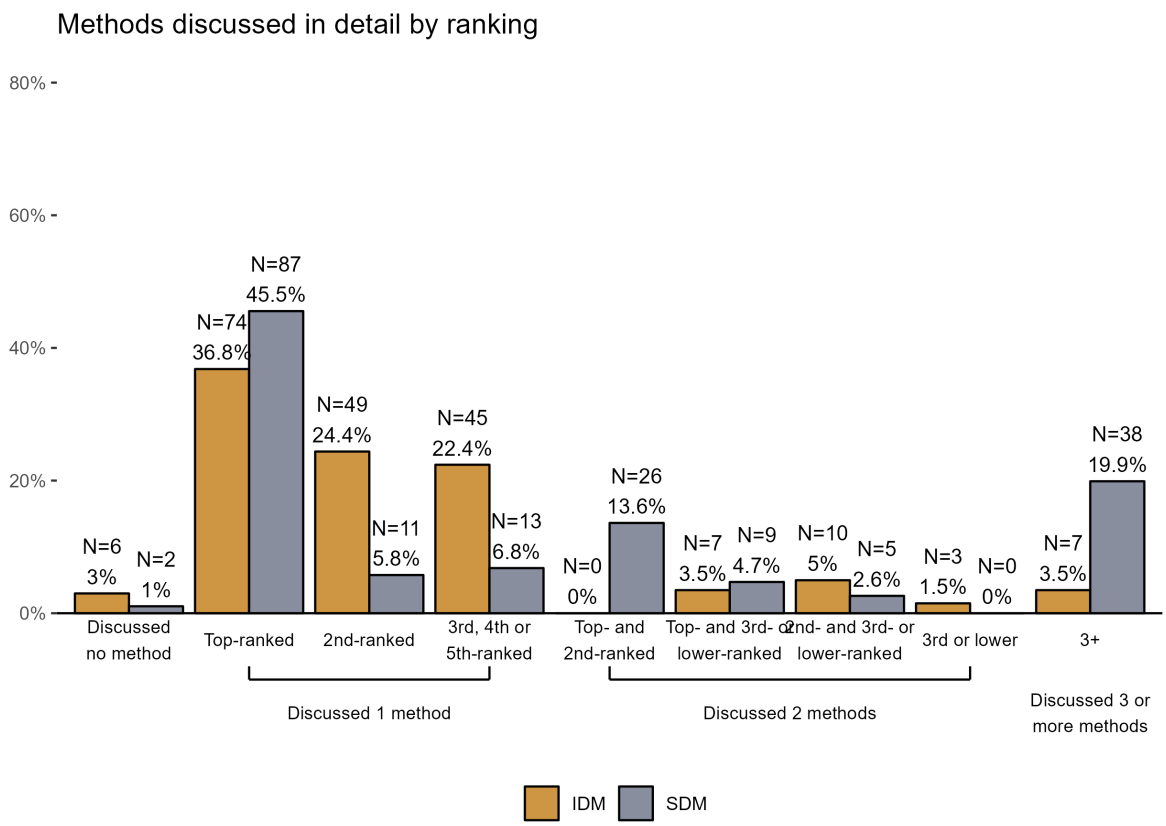

Figure S6: Distribution of number of methods discussed combined with rankings by SDM and IDM regimes. The figure illustrates the distribution of the number of methods discussed and their rankings for clients under both regimes. Discussion is divided into four categories: discussed no methods, discussed one method, discussed two methods, and discussed three or more methods.

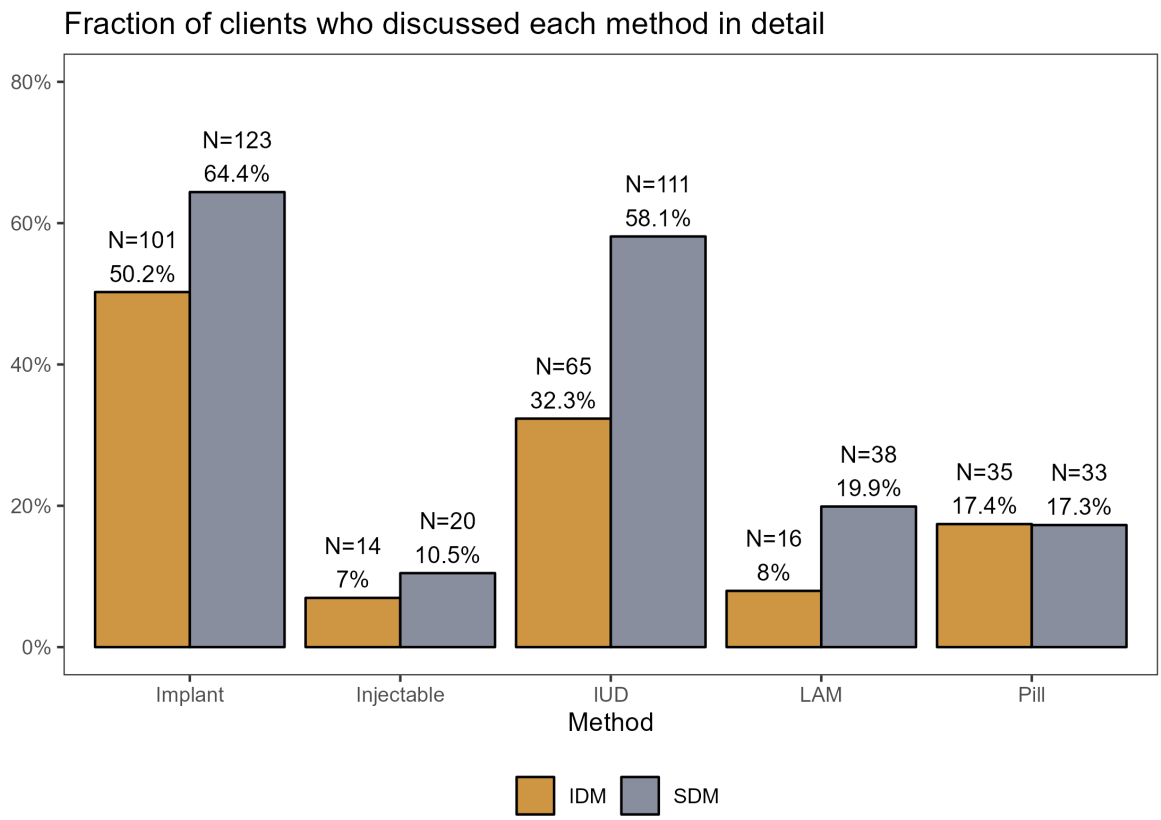

Figure S7: Distribution of method discussion by SDM and IDM regimes. The figure provides a breakdown of the fraction of clients who discussed each method in detail under both regimes.