

Table S1. Responses to the 12-Item Short Form Survey (SF-12) by the Pros-IT patients at the time of diagnosis (n (%))

	n=1141
1. In general, would you say your health is	
Excellent or very good	437 (38.3)
Good	566 (49.6)
Fair or poor	538 (12.1)
2. Does your health <i>now</i> limit you in moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?	
Yes, a lot	26 (2.3)
Yes, a little	228 (20.0)
Not at all	887 (77.7)
3. Does your health <i>now</i> limit you in moderate activities such as climbing several flights of stairs?	
Yes, a lot	28 (2.5)
Yes, a little	193 (16.9)
Not at all	920 (80.6)
<i>During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?</i>	
4. Accomplished less than you would like	182 (16.0)
5. Were limited in the kind of work or other activities	162 (14.2)
<i>During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems?</i>	
6. Accomplished less than you would like	230 (20.2)
7. Did work or activities less carefully than usual	221 (19.4)
8. <i>During the past 4 weeks, how much did pain interfere with your normal work (including work outside the home and housework)</i>	
Not at all or a little bit	1001 (87.8)
Moderately	116 (10.2)
Quite a bit or extremely	23 (2.0)
9. How much of the time <i>during the past 4 weeks</i> have you felt calm and peaceful?	
All or most of the time	688 (60.4)
A good bit or some of the time	368 (32.3)
A little of the time or none	84 (7.4)
10. How much of the time <i>during the past 4 weeks</i> did you have a lot of energy?	
All or most of the time	628 (55.2)
A good bit or some of the time	436 (38.3)
A little of the time or none	74 (6.5)
11. How much of the time <i>during the past 4 weeks</i> have you felt down-hearted and blue?	
All or most of the time	80 (7.0)
A good bit or some of the time	335 (29.4)
A little of the time or none	724 (63.6)
12. <i>During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities?</i>	
All or most of time	52 (4.6)
Some of the time	192 (16.8)
A little or none of the time	896 (89.6)
SF-12 PCS score, mean±SD	51.9±7.2
SF-12 MCS score, mean±SD	49.5±9.4

Table S2. Characteristics at the time of diagnosis of the Pros-IT patients classified according to the three trajectories identified by the Mental Component Score (MCS) of the Short-Form Health Survey (SF-12)

	Trajectory 1 (n=143)	Trajectory 2 (n=146)	Trajectory 3 (n=869)	p-value
Age at diagnosis, years, mean \pm SD	69.7 \pm 7.2	66.8 \pm 8.2	69.0 \pm 7.2	0.0079
Education > lower secondary school, n (%)	60 (42.6)	75 (51.7)	427 (49.8)	0.2236
BMI \geq 30 kg/m ² , n (%)	26 (18.4)	23 (15.9)	128 (15.1)	0.7050
Current smoker, n (%)	24 (17.1)	20 (13.8)	122 (14.4)	0.6588
Diabetes mellitus, n (%)	26 (18.2)	21 (14.4)	125 (14.5)	0.5038
3+ moderate/severe comorbidities*, n (%)	36 (25.2)	29 (19.9)	109 (12.6)	0.0001
Family history of prostate cancer, n (%)	27 (19.2)	33 (22.8)	127 (14.8)	0.0350
T staging at diagnosis, n (%)				0.2181
T1	56 (42.1)	61 (46.2)	440 (52.2)	
T2	61 (45.9)	58 (43.9)	326 (38.6)	
T3 or T4	16 (12.0)	13 (9.9)	78 (9.2)	
Gleason score at diagnosis, n (%)				0.1149
\leq 6	59 (41.6)	64 (44.4)	412 (47.8)	
3+4	34 (23.9)	28 (19.4)	217 (25.2)	
4+3	27 (19.0)	26 (18.1)	104 (12.0)	
\geq 8	22 (15.5)	26 (18.1)	129 (15.0)	
PSA at diagnosis, ng/mL, median (Q1, Q3)	7.7 (5.2, 11)	8.2 (5.5, 11)	6.8 (5.1, 9.7)	0.0082
D'Amico risk class, n (%)				0.2527
Low	27 (19.2)	38 (26.4)	238 (28.0)	
Intermediate	67 (47.9)	59 (41.0)	368 (43.2)	
High	46 (32.9)	47 (32.6)	245 (28.8)	
UCLA PCI UF, mean \pm SD	92.0 \pm 13.1	91.2 \pm 18.0	94.4 \pm 14.8	<0.0001
UCLA PCI UB, mean \pm SD	82.0 \pm 27.2	83.9 \pm 28.3	91.1 \pm 20.4	<0.0001
UCLA PCI BF, mean \pm SD	86.9 \pm 18.7	91.2 \pm 14.1	95.1 \pm 11.8	<0.0001
UCLA PCI BB, mean \pm SD	84.8 \pm 26.3	92.1 \pm 17.8	95.5 \pm 15.2	<0.0001
UCLA PCI SF, mean \pm SD	39.7 \pm 33.0	48.6 \pm 29.7	52.3 \pm 31.4	<0.0001
UCLA PCI SB, mean \pm SD	53.8 \pm 35.2	56.7 \pm 36.2	66.8 \pm 33.9	<0.0001
SF-12 PCS, mean \pm SD	49.4 \pm 9.7	52.6 \pm 8.8	52.2 \pm 6.3	0.0026
SF-12 MCS, mean \pm SD	38.8 \pm 8.2	33.5 \pm 5.3	53.9 \pm 5.2	<0.0001

Table S3. Characteristics at the time of diagnosis of the Pros-IT patients classified according to the two trajectories identified by the Physical Component Score (PCS) of the Short-Form Health Survey (SF-12)

	Trajectory 1 (n=168)	Trajectory 2 (n=990)	p-value
Age at diagnosis, years, mean \pm SD	70.7 \pm 6.9	68.5 \pm 7.4	0.0002
Education > lower secondary school, n (%)	69 (42.1)	493 (50.4)	0.0495
BMI \geq 30 kg/m ² , n (%)	42 (25.6)	135 (14.0)	0.0002
Current smoker, n (%)	21 (12.9)	145 (14.9)	0.4933
Diabetes mellitus, n (%)	39 (23.4)	133 (13.5)	0.0009
3+ moderate/severe comorbidities*, n (%)	45 (27.0)	129 (13.0)	<0.0001
Family history of prostate cancer, n (%)	25 (15.0)	162 (16.6)	0.6065
T staging at diagnosis, n (%)			0.1867
T1	71 (43.8)	486 (51.3)	
T2	75 (46.3)	370 (39.1)	
T3 or T4	16 (9.9)	91 (9.6)	
Gleason score at diagnosis, n (%)			0.0037
\leq 6	62 (37.4)	473 (48.2)	
3+4	36 (21.7)	243 (24.8)	
4+3	32 (19.4)	125 (12.7)	
\geq 8	36 (21.7)	141 (14.3)	
PSA at diagnosis, ng/mL, median (Q1, Q3)	7.4 (5.5, 11.4)	6.9 (5.1, 9.8)	0.0178
D'Amico risk class, n (%)			0.0007
Low	25 (15.3)	278 (28.6)	
Intermediate	76 (46.3)	418 (43.1)	
High	63 (38.4)	275 (28.3)	
UCLA PCI UF, mean \pm SD	90.7 \pm 17.7	94.2 \pm 14.5	0.0002
UCLA PCI UB, mean \pm SD	82.0 \pm 28.1	90.2 \pm 21.5	<0.0001
UCLA PCI BF, mean \pm SD	89.2 \pm 17.3	94.3 \pm 12.5	<0.0001
UCLA PCI BB, mean \pm SD	85.6 \pm 25.7	95.1 \pm 15.5	<0.0001
UCLA PCI SF, mean \pm SD	32.2 \pm 29.8	53.2 \pm 31.0	<0.0001
UCLA PCI SB, mean \pm SD	55.5 \pm 36.0	65.3 \pm 34.4	0.0012
SF-12 PCS, mean \pm SD	42.7 \pm 9.4	53.4 \pm 5.5	<0.0001
SF-12 MCS, mean \pm SD	45.9 \pm 10.5	50.0 \pm 9.4	<0.0001

Stratification by age

- MCS

Stratifying patients by age led to identifying two variables predicting MCS trajectories: among patients younger than 70 years at diagnosis, a family history of prostate cancer (OR=2.19, 95% CI 1.18-4.05) and UF, BF and SF scores at diagnosis in the highest quartile were significantly associated with the *Recovering Group* membership (OR=0.46, 95% CI 0.24-0.89; OR=0.42, 95% CI 0.22-0.79; OR=0.53, 95% CI 0.29-0.99, respectively). Among patients 70 or older, significant predictors were having 3 or more comorbidities for both the Recovering Group and the Permanently low score Group memberships (OR=2.36, 95% CI 1.22-4.53; OR=2.25, 95% CI 1.22-4.17, respectively) and an education level higher than lower secondary school for the Permanently Low Score membership (OR=1.95, 95% CI 1.08-3.52). In addition, UF, BF and SF scores in the highest quartile at the time of diagnosis were significantly associated with the Recovering Group (OR=0.41, 95% CI 0.23-0.71; OR=0.44, 95% CI 0.25-0.79; OR=0.28, 95% CI 0.08-0.96, respectively).

- PCS

Considering patients younger than 70 at the time of diagnosis, the only characteristic significantly associated with Recovering Group membership for PCS was having undergone RT as prostate cancer treatment, as opposed to NSRP (OR=5.98, 95% CI 1.55-23.1); a borderline significance was calculated for diabetes (OR=2.73, 95% CI 0.92-8.08). Among the patients 70 or older, only UF and BF scores in the highest quartile at the time of diagnosis were significant protective factors with respect to *trajectory 2* membership (OR=0.52, 95% CI 0.27-1.00; OR=0.39, 95% CI 0.21-0.73, respectively).

Comparison with ISTAT findings

Table S4. Mean and standard deviation by age group for MCS-12 and PCS-12 in Pros-IT and ISTAT studies

Age (years)	MCS-12				PCS-12			
	Pros-IT		ISTAT		Pros-IT		ISTAT	
	n	Mean±SD	Mean±SD	p-value	n	Mean±SD	Mean±SD	p-value
45-54	34	52.5 ± 3.6	51.2±8.5	0.37	4774	54.1±4.5	51.8±7.5	0.07
55-64	141	51.3 ± 5.3	50.5±9.5	0.34	4130	52.7±4.4	49.2±8.9	<0.0001
65-74	524	51.5 ± 5.5	49.5±10.2	<0.0001	3409	51.0±5.7	45.3±10.5	<0.0001
>74	156	51.1 ± 5.8	46.9±11.7	<0.0001	2008	50.0±5.6	40.0±11.6	<0.0001

Table S5. Quartiles divided by age groups for PCS and MCS SF-12 distributions in Pros-IT and ISTAT studies

	45-54 years		55-64 years		65-74 years		75+ years	
	Pros-IT	ISTAT	Pros-IT	ISTAT	Pros-IT	ISTAT	Pros-IT	ISTAT
Sample Size (n)	34	4744	141	4130	524	3409	156	2008
PCS								
25°percentile	54.3	50.4	50.8	45.1	48.9	37.9	47.2	30.1
50° percentile	55.3	54.8	54.0	53.1	52.7	48.4	51.6	41.3
75° percentile	55.9	56.0	55.5	55.5	55.0	54.3	54.5	50.4
MCS								
25°percentile	51	47.8	48.4	46.9	48.4	37.9	48.4	30.1
50° percentile	52.8	52.8	52.7	52.8	52.4	48.4	52.4	41.3
75° percentile	55.4	57.1	55.1	56.9	55.5	54.3	55.5	50.4

Comparison with cancer patients

Table S6. Mean and standard deviation among oncologic Italian citizens (ISTAT) and among Pros-IT patients in trajectory groups identified for MCS-12 and PCS-12

Groups	MCS-12			PCS-12		
	n	Mean±SD	p-value	n	Mean±SD	p-value
ISTAT	598	41.6±12.8		598	37.9±11.4	
Trajectory 1	89	41.4±4.3	0.88	103	47.2±6.7	<0.0001
Trajectory 2	82	47.7±3.1	<0.0001	581	52.1±5.0	<0.0001
Trajectory 3	513	53.7±3.3	<0.0001			

Table S7. Quartiles for MCS and PCS SF-12 distributions for Pros-IT patients in each trajectory groups identified and for oncologic Italian citizens (ISTAT)

MCS	Pros-IT			
	Trajectory 3	Trajectory 2	Trajectory 1	ISTAT
Sample Size (n)	505	81	94	598
25°percentile	51.5	45.8	39.2	31.3
50° percentile	54.0	47.8	42.8	41.6
75° percentile	56.2	50.1	44.5	53.5
PCS	Trajectory 2		Trajectory 1	
Sample Size (n)	590	90		598
25°percentile	49.4	42.8		27.9
50° percentile	53.0	48.4		36.4
75° percentile	55.6	52.3		47.7

The number of comorbidities in the Pros-IT and ISTAT populations according to the PCS and MCS deciles

Table S8. The number of comorbidities (mean and standard deviation (SD)) in the Pros-IT population according to the PCS and MCS deciles

	PCS						MCS					
decile	0-20	21-30	31-40	41-50	51-60	>61	0-20	21-30	31-40	41-50	51-60	>61
n	1	15	89	185	788	60	2	58	141	279	533	125
mean	5.0	2.5	2.0	1.5	0.9	0.7	2.5	1.5	1.6	1.1	1.0	0.9
SD	0.0	1.6	1.6	1.5	1.1	0.9	2.1	1.6	1.4	1.3	1.2	1.2

Table S9. The number of comorbidities (mean and standard deviation (SD)) in the ISTAT population according to the PCS and MCS deciles

	PCS						MCS					
decile	0-10	10-20	20-30	30-40	40-50	60+	0-10	10-20	20-30	30-40	40-50	60+
n	545	3749	6524	10947	39030	909	823	3524	6383	13534	35725	1445
mean	4.1	3.9	2.8	1.8	0.6	0.9	3.4	3.1	2.4	1.4	0.8	1.7
SD	2.8	2.8	2.4	1.8	1.1	1.2	3.1	2.8	2.4	1.8	1.4	1.9

Figure S1. The MCS (m) and PCS (p) scores of the Pros-IT patients with color density distribution.

