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Health Psychology

Psychological Outcomes in Advanced Cancer Patients After Receiving Genomic Tumour Profiling Results

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Supplementary files

Table S1. One-way ANOVA according to actionable via MoST sub-study, actionable via other pathway or non-actionable results for hope (HHI), anxiety (HADS-A), depression (HADS-D) and CGP-specific anxiety (IES) at T2 (n=374)

		Actionable via IoST sub-study		Actionable via different pathway		n-actionable	F (df)	p- value
	n	M (SD)	n M (SD)		n	M (SD)		
HHI	79	1.76 (1.21)	139	2.04 (1.23)	124	1.91 (1.22)	1.37 (2)	.254
HADS-A	103	3.09 (1.26)	141	2.94 (1.27)	130	2.82 (1.34)	1.21 (2)	.300
HADS-D	103	3.36 (1.11)	141	3.37 (1.03)	130	3.50 (.97)	.73 (2)	.482
IES	105	2.99 (1.26)	142	2.89 (1.23)	127	2.72 (1.27)	1.46 (2)	.233

Abbreviations: CGP – comprehensive genomic profiling; HADS – Hospital Anxiety and Depression Scale (Anxiety or Depression sub-scale); HHI – Herth Hope Index; IES – Impact of Events Scale.

Table S2. Correlations between hope (HHI), anxiety (HADS-A), depression (HADS-D) and CGP-specific anxiety (IES) at T2

	T2 HHI	T2 HADS-A	T2 HADS-D	T2 IES	Age	Comor -bidity Index	TO Self efficacy	T0 Know- ledge	T0 Att. to uncer- tainty	T0 Perc. Sus- cepti- bility	T0 – Perc. Impor -tance of CGP	SES
T2 HADS-A	554***											
T2 HADS-D	616***	.606***										
T2 IES	223***	.356***	.217***									
Age	.135**	192***	028	038								
Comorbidity	.072	171***	.019	015	. 613***							
Index												
T0 Self-efficacy	.225***	098*	141**	155***	.026	.009						
T0 Knowledge	.018	017	019	030	.028	.047	.026					
T0 Attitude	.108*	005	037	093*	.018	041	.508***	071				
towards uncertainty												
T0 Perceived susceptibility	148**	.067	.083	136**	.020	.019	.154***	050	.226***			
TO Perceived importance of CGP	.038	.066	.022	.098*	.015	003	.171***	038	.246***	.041		
Socioeconomic status (SES)	.056	051	035	020	025	.002	.078*	005	.025	.029	011	
Time since first cancer diagnosis (months)	026	024	.012	001	.061	.035	.008	.029	002	.074*	028	.055

Abbreviations: CGP - comprehensive genomic profiling; HADS - Hospital Anxiety and Depression Scale (Anxiety or Depression sub-scale); HHI – Herth Hope Index; IES – Impact of Events Scale; SES – socioeconomic status. Notes: *** p < .001, ** p < .05. P-values below the Bonferroni correction (< .00185) highlighted in bold.

Table S3. Multiple hierarchical linear regression models of predictors of hope (HHI), anxiety (HADS-A), depression (HADS-D) and CGP-specific anxiety (IES) at T2 (n=374)

		В	95% CI for B	p-	R ²	Change in
				value		R ² (p-value)
T2 HHI						
Step 1	T1 HHI	.47	.4055	.000	.53	.53 (<.001)
Step 2					.67	.14 (<.001)
	T0 self-efficacy	.60	.06 1.13	.031		
	T0 perceived susceptibility	02	0301	.002		
	T2 HADS-A	20	3010	.000		
	T2 HADS-D	44	5632	.000		
T2 HAD	S-A					
Step 1	T1 HADS-A	.54	.4661	.000	.56	.56 (<.001)
Step 2	Gender (ref = male)	69	-1.2019	.007	.67	.11 (<.001)
	Language (ref = only	.82	.10 1.54	.025		
	English at home)					
	T2 HHI	11	1704	.001		
	T2 HADS-D	.29	.2038	.000		
	T2 IES	.03	.0105	.008		
T2 HADS	S-D					
Step 1	T1 HADS-D	.32	.2440	.000	.39	.39 (<.001)
Step 2	T2 HHI	19	2513	.000	.58	.19 (<.001)
	T2 HADS-A	.27	.2034	.000		
	Age	.03	.0105	.002		
	Socioeconomic status	.09	.0017	.045		
T2 IES						
Step 1	T1 IES	.43	.3551	.000	.29	.29 (<.001)
Step 2	T0 perceived susceptibility	05	0901	.020	.35	.05 (<.001)
•	ECOG (ref = score 1+)	-2.26	-4.3417	.034		, ,
	Education (ref = postgrad)	96	-1.8607	.035		
	T2 HADS-A	.52	.2778	.000		

Abbreviations: ARIA – Accessibility and Remoteness Index of Australia; B – unstandardized beta; CGP – comprehensive genomic profiling; CI – confidence intervals; ECOG – Eastern Cooperative Oncology Group; HADS – Hospital Anxiety and Depression Scale (Anxiety or Depression sub-scale); HHI – Herth Hope Index; IES – Impact of Events Scale, Tx outcome – treatment (actionable vs non-actionable). Notes: *** p < .001, ** p < .01. P-values below the Bonferroni correction (< .00185) highlighted in bold.

Table S4. Multinomial logistic regression of predictors of hope (HHI), anxiety (HADS-A), depression (HADS-D) and CGP-specific anxiety (IES) (n=374)

Traject	ories Variables	OR	95% CI	р	OR	95% CI	р	OR	95% CI	р	
Herth I	Hope Index (HHI)	Н	igh-High as re	f.	High-Low as ref.			Low-High as ref.			
High-	T0 perceived				.95	.93 – .98	.000				
High	susceptibility										
	Comorbidity				.51	.33 – .78	.002				
	Index		NA								
	Previous				3.86	1.05 –	.042				
	radiotherapy					>10					
	Previous surgery							2.93	1.27 –	.012	
	Time since							.98	6.77	.001	
	diagnosis							_	.97 – .99		
	T1 HADS-A				.99	.49 – .79	.000	.53	.39 – .71	.000	
	T1 HADS-D									200	
	Medical/science							.02	.00 – .23	.002	
Himb	occupation	1.05	1.02 1.00	000							
High- Low	T0 perceived susceptibility	1.05	1.02 – 1.08	.000							
LOW	Comorbidity	1.98	1.28 – 3.05	.003				2.24	1.16 –	.016	
	Index	1.50	1.20 3.03	.003		NA		2.24	4.30	.010	
	Previous	.26	.07 – .95	.042		1471			4.50		
	radiotherapy	.20	.07 .55	.0 12							
	Previous surgery							3.52	1.36 - 9.12	2 .010	
	Time since							.98	.96 – 1.00	.021	
	diagnosis										
	T1 HADS-A	1.61	1.27 - 2.03	.000							
	T1 HADS-D										
	Medical/science										
_	occupation										
Low-	T0 perceived										
High	susceptibility				45	22 00	046				
	Comorbidity Index				.45	.23 – .86	.016		NA		
	Previous surgery	.24	.15 – .79	.012	.28	.11 74	.010		IVA		
	Time since	1.02	1.01 –1.03	.001		1.00 – 1.04					
	diagnosis	1.02	1.01 1.05	.001	1.02	1.00 1.04	.021				
	T1 HADS-A	1.90	1.40 – 2.56	.000							
	T1 HADS-D										
	Medical/science	48.44	4.27 ->10	.002							
	occupation (yes)										
Low-	T0 perceived	1.04	1.01 - 1.06	.002							
Low	susceptibility										
	Comorbidity										
	Index										

March Marc		Previous radiotherapy Time since	.04	.01 – .24	.001				.98	.97 – .1.00	.024
T1 HADS-D		diagnosis									
Medical/science occupation 1.79		T1 HADS-A	1.81	1.24 - 2.31	.000						
MADS-Anxiety (HADS-A) Low-Low as ref. High-Low as ref. Low-High as ref.		T1 HADS-D	1.40	1.13 – 1.73	.002	1.38		.014			
Hadden		•		1.26 ->10	.030						
High-High Age 1.17 1.03 - 0.017 0.017 1.34 1.96 1.06 - 0.03 0.03 3.64 1.18 - 0.025 1.14 1.08 - 1.21 0.00 1.08 - 1.21 0.00 1.08 - 1.21 0.00 1.08 - 1.21 0.00 1.08 - 1.21 0.00 1.01 2.53 0.014 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.03 0.018 0.02 0.018 0.02 0.018 0.02 0.02 0.02 0.04	HADS-A	•		ow-Low as re	f.	His	gh-Low as r	ef.	Lo	w-High as r	ef.
Comorbidity 1.55 1.31 1.035 1.14 1.08 1.27 1.05 1.15 1.01 1.27 1.05 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.18 1.14 1.08 1.14 1.08 1.14 1.08 1.14 1.08 1.15 1.05 1.12 1.06 1.18 1.000 1.00	High-						<u>.</u>			1.03 -	.017
Index		SES									
T1 HADS-D 1.27 1.05 - 1.54 .013 T1 IES 1.14 1.08 - 1.21 .000 ARIA - major city ARIA - inner regional ECOG score 3.64 1.18025 >10 High- Low SES Comorbidity Index T1 HHI T1 HADS-D T1 IES ARIA - major city ECOG score Low- Age Age 84 .7496 .008 ARIA - major city ECOG score Low- Age Age 84 .7496 .008 Age Age 85 .7597 .018 Age		•	.55		.035		n.s.		.20	.07 – .57	.003
T1 IES		T1 HHI	.68	.58 – .79	.000						
ARIA – major city ARIA – inner regional ECOG score 3.64 1.18 – .025 >10 High- Low SES Comorbidity Index T1 HHI T1 HADS-D T1 IES ARIA – major city Index SES Comorbidity Index T1 HHI SES 1.82 1.10 – 3.01 1.10		T1 HADS-D	1.27	1.05 – 1.54	.013				1.96		.033
ARIA – inner regional ECOG score 3.64 1.18 – .025		T1 IES	1.14	1.08 - 1.21	.000						
Regional Record		ARIA – major city									.014
High- Low SES Comorbidity Index T1 HHI T1 HADS-D T1 IES T1 HHI T1 HADS-D T1 IES T1 HHI T1 HADS-D T1 IES T1 IES											.022
SES		ECOG score	3.64		.025						
Comorbidity Index T1 HHI	_	Age							1.17		.018
Index		SES							.52	.31 – .87	.013
T1 HADS-D T1 IES ARIA – major city ECOG score Low- Age High SES 1.82 1.10 – 3.01 1.04 – 7.38 1.15 – .013 3.25 Comorbidity T1 HADS-D T1 IES ARIA – major city T1 HADS-D T1 IES ARIA – major city 1.12 1.06 – 1.18 .000 42.6 1.10044 4 210 42.6 1.10044 4 2 > 10 1.15 – .013 3.25 NA NA NA NA NA NA NA NA NA N		-					NA		.23	.08 – .67	.007
T1 IES ARIA – major city ECOG score Low- Age		T1 HHI	.77	.66 – .89	.000						
ARIA – major city ECOG score Low- Age											
ECOG score Low- Age			1.12	1.06 – 1.18	.000						_
Low-High Age .84 .7496 .008 .85 .7597 .018 High SES 1.82 1.10 - 3.01 .020 1.93 1.15 - .013 Comorbidity 2.77 1.04 - 7.38 .042 4.29 1.50 - .007 Index >10 NA T1 HHI T1 HADS-D T1 IES 1.15 1.05 - 1.27 .002 ARIA - major city .01 .0050 .019 .02 .0091 .044											.044
High SES 1.82 1.10 - 3.01 .020 1.93 1.15013 .013 Comorbidity 2.77 1.04 - 7.38 .042 4.29 1.50007 Index >10 NA T1 HHI T1 HADS-D T1 IES 1.15 1.05 - 1.27 .002 ARIA - major city .01 .0050 .019 .02 .0091 .044	_				222	0.5	75 07	212			
3.25 Comorbidity 2.77 1.04 – 7.38 .042 4.29 1.50 – .007 NA		=									
Index T1 HHI T1 HADS-D T1 IES 1.15 1.05 – 1.27 .002 ARIA – major city .01 .00 – .50 .019 .02 .00 – .91 .044	High						3.25				
T1 HADS-D T1 IES 1.15 1.05 – 1.27 .002 ARIA – major city .01 .00 – .50 .019 .02 .00 – .91 .044		Index	2.77	1.04 – 7.38	.042	4.29		.007		NA	
T1 IES 1.15 1.05 – 1.27 .002 ARIA – major city .01 .00 – .50 .019 .02 .00 – .91 .044											
ARIA – major city .01 .00 – .50 .019 .02 .00 – .91 .044			1.15	1.05 – 1.27	.002						
						.02	.00 – .91	.044			

Low- Low	Age SES							1.19 .55 .36	1.05 – 1.35 .33 – .91 .14 – .96	.008
	Comorbidity Index							.36	.14 – .96	.042
	T1 HHI		NA		1.30	1.13 - 1.51	.000			
	T1 HADS-D				90	0F 0F	000	07	70 05	003
	T1 IES ARIA – major city				.89	.85 – .95	.000	.87 69.4 1	.79 – .95 2.00 >10	.002
	ECOG score									
HADS-I D)	Depression (HADS-	L	ow-Low as re	f.	Hi	igh-Low as re	ef.	Lo	w-High as r	ef.
High-	SES							.50	.29 – .89	.01
High	T1 HHI	.62	.45 – .86	.004						
_	T1 HADS-A	3.20	1.75 – 5.85	.000				3.42	1.81 – 6.48	.00
	Relative with cancer				.01	.00 – .24	.007	.02	.00 – .61	.025
High- Low	SES	.64	.45 – .91	.013				.50	.33 – .877	.00
	T1 HHI									
	T1 HADS-A	1.88	1.28 – 2.75	.001		NA		2.00	1.31 – 3.07	.00
	Relative with cancer	8.65	1.03 – <10	.047						
Low- High	SES				1.99	1.29 – 3.07	.002			
-	T1 HHI	.84	.72 – .98	.025						
	T1 HADS-A Relative with				.50	.33 – .77	.001		NA	
	cancer				4 = 6		0.10			
Low- Low	SES T1 HHI				1.56	1.10 – 2.21	.013	.78	.59 –	.02
LOW	ITHHI							.76	.59 – 1.04	.02
	T1 HADS-A		NA		.53	.36 – .78	.001			
	Relative with									
l a at	cancer			<u>. </u>	1.15	-l.			[]: ala a a a	£
(IES)	of Events Scale	L	ow-Low as re	1.	H	igh-Low as re	er.	LO	w-High as r	er.
High-	T0 Perceived				.97	.95 – .99	.002			
High	susceptibility		4 4							-
	T1 HADS-A	1.37	1.17 – 1.60	.000				1.34	1.08 – 1.67	.00
	Speaking non- English at home	7.11	2.23 – <10	.001				8.06	1.11 >10	.03

	ECOG score 0				3.45	1.19 – 9.98	.022			
High- Low	TO Perceived susceptibility									
	T1 HADS-A	1.34	1.14 – 1.57	.000		NA		1.32	1.05 - 1.65	.017
	Speaking non- English at home									
	ECOG score 0	.26	.11 – .64	.003				.19	.05 – .75	.018
Low-	T0 Perceived									
High	susceptibility				7.0	64 65	0.4 =			
	T1 HADS-A				.76	.61 – .95	.017			
	Speaking non-								NA	
	English at home				F 22	1 22	010			
	ECOG score 0				5.23	1.33 – <10	.018			
Low-	TO Perceived									
Low	susceptibility									
	T1 HADS-A				.75	.64 – .88	.000			
	Speaking non-		NA							
	English at home				2.04	4.50	002			
	ECOG score 0				3.81	1.56 – 9.30	.003			

Abbreviations: ARIA – Accessibility and Remoteness Index of Australia; CGP – comprehensive genomic profiling; CI – confidence interval; ECOG – Eastern Cooperative Oncology Group; HADS – Hospital Anxiety and Depression Scale (Anxiety or Depression sub-scale); HHI – Herth Hope Index; IES – Impact of Events Scale; OR – odds ratio; SE – standard error; SES – socioeconomic status.