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Sabina Vatter

Timothy E. Schlub

Christine E. Napier

Megan C. Best

Nicci Bartley

See next page for additional authors

Authors

Sabina Vatter, Timothy E. Schlub, Christine E. Napier, Megan C. Best, Nicci Bartley, Ilona Juraskova, Bettina Meiser, Mandy L. Ballinger, Barbara B. Biesecker, David Goldstein, David M. Thomas, Phyllis Butow, and Members of the PiGeOn Project

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

Sabina Vatter, PhD[1], Timothy E. Schlub, PhD,[2] Christine E. Napier, PhD,[3] Megan C. Best, PhD,[1,4] Nicci Bartley, MA[1] Ilona Juraskova, PhD,[5] Bettina Meiser, PhD,[6] Mandy L. Ballinger, PhD,[3,7] Barbara B. Biesecker, PhD,[8] David Goldstein, MD,[9] David M. Thomas, PhD,[3,7] Phyllis Butow, PhD,[1] and Members of the PiGeOn Project

[1]   School of Psychology, Faculty of Science, Psycho-Oncology Co-operative Research Group (PoCoG), University of Sydney, Camperdown, NSW 2006, Australia

[2]   Sydney School of Public Health, Faculty of Medicine and Health, University of Sydney, NSW 2006, Australia

[3]   Cancer Theme, Garvan Institute of Medical Research, Darlinghurst, NSW 2010, Australia

[4]   Institute for Ethics and Society, University of Notre Dame Australia, Broadway, NSW 2007, Australia

[5]   School of Psychology, Faculty of Science, Centre for Medical Psychology and Evidence-Based Decision-Making (CeMPED), University of Sydney, Camperdown, NSW 2006, Australia

[6]   Psychosocial Research Group, Prince of Wales Clinical School, University of New South Wales, Kensington, NSW 2032, Australia

[7]   St Vincent's Clinical School, University of New South Wales, Darlinghurst, NSW 2010, Australia

[8]   Newborn Screening, Ethics and Disability Studies, RTI International, Washington, DC, USA

[9]   Department of Medical Oncology, Prince of Wales Hospital, NSW 2031, Australia

Members of the PiGeOn Project are named authors, plus Ainsley Newson, Kathy Tucker, Richard Vines, Kate Vines, Judy Kirk, Mary-Anne Young, Jacqueline Savard, and Chris Jacobs.

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 MoST sub-study		Actionable via different pathway		Non-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	T0 Self efficacy	T0 Know-ledge	T0 Att. to uncer-tainty	T0 Perc. Suscepti-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 Index	.072	**-.171*****	.019	-.015	**.613*****							
T0 Self-efficacy	**.225*****	-.098*	-.141**	**-.155*****	.026	.009						
T0 Knowledge	.018	-.017	-.019	-.030	.028	.047	.026					
T0 Attitude towards uncertainty	.108*	-.005	-.037	-.093*	.018	-.041	**.508*****	-.071				
T0 Perceived susceptibility	-.148**	.067	.083	-.136**	.020	.019	**.154*****	-.050	**.226*****			
T0 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 < .01, * 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)

		B	95% CI for B	p-value	R^2	Change in R^2 (p-value)
T2 HHI						
Step 1	T1 HHI	.47	.40 … .55	**.000**	.53	.53 (<.001)
Step 2					.67	.14 (<.001)
	T0 self-efficacy	.60	.06 … 1.13	.031		
	T0 perceived susceptibility	-.02	-.03 … -.01	**.002**		
	T2 HADS-A	-.20	-.30 … -.10	**.000**		
	T2 HADS-D	-.44	-.56 … -.32	**.000**		
T2 HADS-A						
Step 1	T1 HADS-A	.54	.46 … .61	**.000**	.56	.56 (<.001)
Step 2	Gender (ref = male)	-.69	-1.20 … -.19	.007	.67	.11 (<.001)
	Language (ref = only English at home)	.82	.10 … 1.54	.025		
	T2 HHI	-.11	-.17 … -.04	.001		
	T2 HADS-D	.29	.20 … .38	**.000**		
	T2 IES	.03	.01 … .05	.008		
T2 HADS-D						
Step 1	T1 HADS-D	.32	.24 … .40	**.000**	.39	.39 (<.001)
Step 2	T2 HHI	-.19	-.25 … -.13	**.000**	.58	.19 (<.001)
	T2 HADS-A	.27	.20 … .34	**.000**		
	Age	.03	.01 … .05	.002		
	Socioeconomic status	.09	.00 … .17	.045		
T2 IES						
Step 1	T1 IES	.43	.35 … .51	**.000**	.29	.29 (<.001)
Step 2	T0 perceived susceptibility	-.05	-.09 … -.01	.020	.35	.05 (<.001)
	ECOG (ref = score 1+)	-2.26	-4.34 … -.17	.034		
	Education (ref = postgrad)	-.96	-1.86 … -.07	.035		
	T2 HADS-A	.52	.27 … .78	**.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)

Trajectories	Variables	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Herth Hope Index (HHI)		**High-High as ref.**			**High-Low as ref.**			**Low-High as ref.**		
High-High	T0 perceived susceptibility				.95	.93 – .98	.000			
	Comorbidity Index		NA		.51	.33 – .78	.002			
	Previous radiotherapy				3.86	1.05 – >10	.042			
	Previous surgery							2.93	1.27 – 6.77	.012
	Time since diagnosis							.98	.97 – .99	.001
	T1 HADS-A				.99	.49 – .79	.000	.53	.39 – .71	.000
	T1 HADS-D									
	Medical/science occupation							.02	.00 – .23	.002
High-Low	T0 perceived susceptibility	1.05	1.02 – 1.08	.000						
	Comorbidity Index	1.98	1.28 – 3.05	.003		NA		2.24	1.16 – 4.30	.016
	Previous radiotherapy	.26	.07 – .95	.042						
	Previous surgery							3.52	1.36 – 9.12	.010
	Time since diagnosis							.98	.96 – 1.00	.021
	T1 HADS-A	1.61	1.27 – 2.03	.000						
	T1 HADS-D									
	Medical/science occupation									
Low-High	T0 perceived susceptibility									
	Comorbidity Index				.45	.23 – .86	.016		NA	
	Previous surgery	.24	.15 – .79	.012	.28	.11 … 74	.010			
	Time since diagnosis	1.02	1.01 –1.03	.001	1.02	1.00 – 1.04	.021			
	T1 HADS-A	1.90	1.40 – 2.56	.000						
	T1 HADS-D									
	Medical/science occupation (yes)	48.44	4.27 – >10	.002						
Low-Low	T0 perceived susceptibility	1.04	1.01 – 1.06	.002						
	Comorbidity Index									

	Variable	Low-Low as ref.			High-Low as ref.			Low-High as ref.		
	Previous radiotherapy	.04	.01 – .24	.001						
	Time since diagnosis							.98	.97 – .1.00	.024
	T1 HADS-A	1.81	1.24 – 2.31	.000						
	T1 HADS-D	1.40	1.13 – 1.73	.002	1.38	1.07 – 1.79	.014			
	Medical/science occupation	10.61	1.26 – >10	.030						

HADS-Anxiety (HADS-A)		Low-Low as ref.			High-Low as ref.			Low-High as ref.		
High-High	Age				n.s.			1.17	1.03 – 1.34	.017
	SES									
	Comorbidity Index	.55	.31 – .96	.035				.20	.07 – .57	.003
	T1 HHI	.68	.58 – .79	.000						
	T1 HADS-D	1.27	1.05 – 1.54	.013				1.96	1.06 – 3.64	.033
	T1 IES	1.14	1.08 – 1.21	.000						
	ARIA – major city							101.67	2.53 ... >10	.014
	ARIA – inner regional							138.62	2.03 ... >10	.022
	ECOG score	3.64	1.18 – >10	.025						
High-Low	Age				NA			1.17	1.03 – 1.34	.018
	SES							.52	.31 – .87	.013
	Comorbidity Index							.23	.08 – .67	.007
	T1 HHI	.77	.66 – .89	.000						
	T1 HADS-D									
	T1 IES	1.12	1.06 – 1.18	.000						
	ARIA – major city							42.64	1.10 ... >10	.044
	ECOG score									
Low-High	Age	.84	.74 – .96	.008	.85	.75 – .97	.018	NA		
	SES	1.82	1.10 – 3.01	.020	1.93	1.15 – 3.25	.013			
	Comorbidity Index	2.77	1.04 – 7.38	.042	4.29	1.50 – >10	.007			
	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			
	ECOG score									

		Low-Low as ref.			High-Low as ref.			Low-High as ref.		
Low-Low	Age	NA						1.19	1.05 – 1.35	.008
	SES							.55	.33 – .91	.020
	Comorbidity Index							.36	.14 – .96	.042
	T1 HHI				1.30	1.13 – 1.51	.000			
	T1 HADS-D									
	T1 IES				.89	.85 – .95	.000	.87	.79 – .95	.002
	ARIA – major city							69.41	2.00 … >10	.019
	ECOG score									

HADS-Depression (HADS-D)		Low-Low as ref.			High-Low as ref.			Low-High as ref.		
High-High	SES							.50	.29 – .89	.017
	T1 HHI	.62	.45 – .86	.004						
	T1 HADS-A	3.20	1.75 – 5.85	.000				3.42	1.81 – 6.48	.000
	Relative with cancer				.01	.00 – .24	.007	.02	.00 – .61	.025
High-Low	SES	.64	.45 – .91	.013				.50	.33 – .877	.002
	T1 HHI					NA				
	T1 HADS-A	1.88	1.28 – 2.75	.001				2.00	1.31 – 3.07	.001
	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					NA	
	T1 HADS-A				.50	.33 – .77	.001			
	Relative with cancer									
Low-Low	SES				1.56	1.10 – 2.21	.013			
	T1 HHI							.78	.59 – 1.04	.025
	T1 HADS-A		NA		.53	.36 – .78	.001			
	Relative with cancer									

Impact of Events Scale (IES)		Low-Low as ref.			High-Low as ref.			Low-High as ref.		
High-High	T0 Perceived susceptibility				.97	.95 – .99	.002			
	T1 HADS-A	1.37	1.17 – 1.60	.000				1.34	1.08 – 1.67	.008
	Speaking non-English at home	7.11	2.23 – <10	.001				8.06	1.11 … >10	.039

Group	Variable	OR	CI	p	OR	CI	p	OR	CI	p
High-Low	ECOG score 0				3.45	1.19 – 9.98	.022			
	T0 Perceived susceptibility				NA					
	T1 HADS-A	1.34	1.14 – 1.57	.000	NA			1.32	1.05 – 1.65	.017
	Speaking non-English at home				NA					
	ECOG score 0	.26	.11 – .64	.003				.19	.05 – .75	.018
Low-High	T0 Perceived susceptibility							NA		
	T1 HADS-A				.76	.61 – .95	.017	NA		
	Speaking non-English at home							NA		
	ECOG score 0				5.23	1.33 – <10	.018	NA		
Low-Low	T0 Perceived susceptibility	NA								
	T1 HADS-A	NA			.75	.64 – .88	.000			
	Speaking non-English at home	NA								
	ECOG score 0	NA			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.