

Coping and psychological flexibility among women dealing with infertility

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THANK YOU

Access Australia's National Infertility Network,
Fertility New Zealand,
The National Infertility Association RESOLVE (USA)
Infertility Network UK
Infertility Awareness Association of Canada
Independent professionals & community groups

"Step into this pool of blood that is my heart, but be careful not to splash!" J. Rumi by J.Frederickson.

WHICH [FACTORS] HELP WOMEN EMBRACE THE REALITY OF INFERTILITY AND MAINTAIN THEIR EMOTIONAL WELLBEING AND QUALITY OF LIFE?

CAN PSYCHOLOGICAL FLEXIBILITY FACILITATE WOMEN'S EMOTIONAL ADJUSTMENT AND QUALITY OF LIFE, BEYOND THE COPING STRATEGIES ALREADY EXPLAINED IN THE STRESS-COPING MODEL?

OVERVIEW

Rationale for research

Aim / hypotheses

Results

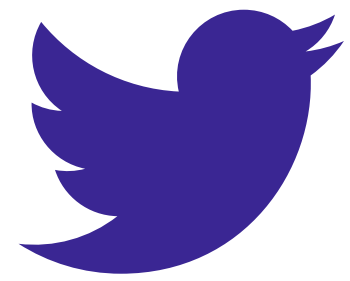
Implications

RATIONALE

- **6.8 - 10%** of couples are infertile (Cunha, Galhardo, & Pinto-Gouveia, 2016). **56%** seek medical help (Boivin, Bunting, Collins, & Nygren, 2007).
- **71,516** Assisted Reproductive Technology (ART) treatment cycles were undertaken in Australian and New Zealand clinics in 2013, however only **18.2%** resulted in a live birth (Macaldowie, Lee, & Chambers, 2015).
- **20%** of individuals undertaking ART treatment experience emotional adjustment difficulties (Verkuijlen, Verhaak, Nelen, Wilkinson, & Farquhar, 2016).
- and a lower level of quality of life (Xiaoli et al., 2016).

RATIONALE

The Stress-Coping Model and Psychological Flexibility Model have been found to be efficacious for a number of health-related concerns and medical conditions



The stress-coping model

3 overarching coping styles have been investigated:

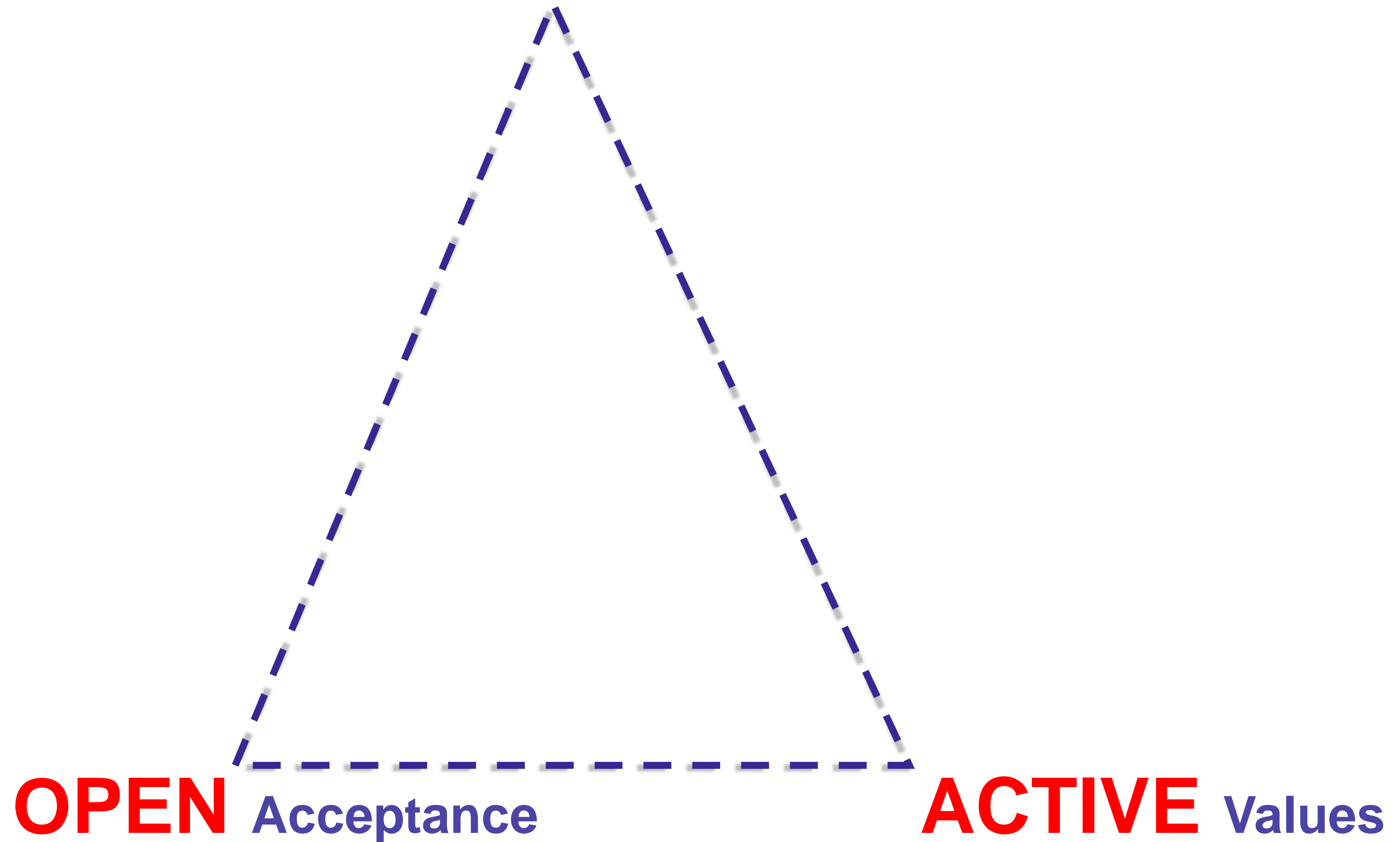
Active coping has been found to not correlate with women's emotional wellbeing and/or quality of life in the context of infertility (Aflakseir & Zarei, 2013)

Passive coping: active avoidance + passive-avoidance has been found to significantly predict increased **psychological distress** (Cunha et al., 2016; Gourounti et al., 2012; Lechner, Bolman, & van Dalen, 2007; Lykeridou et al., 2011; Peterson, Newton, Rosen, & Schulman, 2006; Schmidt et al., 2005) and **reduced quality of life**.

Meaning-based coping has been found to predict reduced psychological distress (Aflakseir & Zarei, 2013).

The Psychological Flexibility Model

Cognitive Fusion **AWARE** Mindfulness



7 Independent Variables

4 coping styles +

Acceptance, Mindfulness, Cognitive Fusion, Values

2 Dependent Variables

Fertility quality of life

Psychological distress

Aim and Hypotheses

Aim of this study was to investigate **the extent** to which psychological flexibility and coping styles contribute to women's **psychological adjustment and fertility quality** of life within the context of infertility.

H1: **Coping style and psychological flexibility**, as measured by acceptance, mindfulness and cognitive fusion, would significantly predict **Fertility Quality of Life**.

H2: **Coping style and psychological flexibility**, as measured by acceptance, mindfulness, cognitive fusion and values would significantly predict **Psychological Distress**.

Participants

- 106 women, who reported not being able to conceive or carry a child to term after one year of trying.
- Live in Australia (36%), Canada, Denmark, England, Ireland, New Zealand, Saudi Arabia, Switzerland, Trinidad, USA and Wales.
- Average age = 33.8 years
- 85% married
- Relationship duration: 1 – 23 years (the most frequent 6 and 8 years)
- 65% Bachelor degree, MD, Doctor Degree

Participants

- Time before seeking medical assistance: 0 - 7 years
- Lengths of time since diagnosed: 1 month - 8 years
- 75.5% were obtaining medical fertility assistance (IVF, ICSI, IUI, gamete donation, ovarian stimulation) at the time of study.
- 50% had 2 miscarriages (mean +/- SD 1.3)
- 52% had 4 unsuccessful IVF cycles (mean +/- 2.0)

Participants: Mental health profile

- 21% life-time prevalence of MD (e.g. MDD, PTSD)
- Hx of psychological treatment – fertility related:
 - 37% psychotherapeutic support (non-specified)
 - 19% Mindfulness
 - Most common type undertaken

Quantitative Measures used

Variable	Measure
Psychological Adjustment	Depression Anxiety and Stress Scales – 21 (DASS-21; Lovibond & Lovibond, 1995).
Fertility-related Quality of life	Fertility Quality of Life Questionnaire (FertiQoL; Boivin, Takefman, & Braverman, 2011).
Acceptance	Acceptance and Action Questionnaire – second edition (AAQ-II; Hayes et al., 2004).
Mindfulness	Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003).
Cognitive fusion	Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014).
Values	Valued Living Questionnaire (VLQ; Wilson & Groom, 2002).
Coping styles	Copenhagen Multi-Centre Psychosocial Infertility (COMPI) questionnaire (COMPI; Schmidt, 2006).

What were the results? Quality of life

Hierarchical Regression assessing the predictive utility of coping styles and aspects of psychological flexibility in relation to Fertility Quality of Life (Total)

Predictor	<i>B</i>	<i>SE(B)</i>	95% CI for <i>B</i>		β	<i>sr</i> ²	<i>p</i>
			Lower	Upper			
Step 1 ($R^2_{\text{chg}} = .44$)							
<u>Active avoidance coping</u>	-2.73	0.38	-3.49	-1.97	-.54	.28	0.000
Active confronting coping	0.09	0.30	-0.50	0.69	.03	.00	
Passive avoidance coping	-0.65	0.48	-1.01	0.88	-.01	.00	
<u>Meaning-based coping</u>	1.41	0.36	0.70	2.12	.34	.08	0.000

What were the results? Quality of life

Step 2 ($R^2_{\text{chg}} = .10$)	B	$SE(B)$	Lower	Upper	β	sr^2	p
Active avoidance coping	-1.89	0.39	-2.67	-1.10	-.37	.10	0.000
Active confronting coping	-0.01	0.28	-0.56	0.54	.00	.00	
Passive avoidance coping	0.63	0.44	-0.82	0.94	.01	.00	
Meaning-based coping	1.03	0.34	0.36	1.70	.25	.04	0.003
Acceptance/Experiential avoidance	0.45	0.17	0.11	0.79	.30	.03	0.010
Cognitive Fusion	-0.10	0.19	-0.48	0.28	-.52	.00	
Mindfulness	0.05	0.10	-0.15	0.25	.49	.00	

Note. $R^2 = 54.7\%$ ($R^2_{\text{adj}} = 51.5\%$). CI = confidence interval.

What were the results? Psychological distress

Hierarchical Regression assessing the predictive utility of coping styles and aspects of psychological flexibility in relation to Psychological Distress (Total)

Predictor	<i>B</i>	<i>SE(B)</i>	95% CI for <i>B</i>		β	<i>sr</i> ²	<i>p</i>
			Lower	Upper			
Step 1 ($R^2_{\text{chg}} = .28$)							
<u>Active avoidance coping</u>	1.77	0.33	1.11	2.43	.46	.20	0.000
Active confronting coping	-0.27	0.26	-0.79	.24	-.10	.00	
Passive avoidance coping	-0.43	0.41	-1.25	0.39	-.91	.00	
Meaning-based coping	-0.48	0.30	-1.10	0.13	-.15	.02	

What were the results? Psychological distress

Step 2 ($R^2_{\text{chg}} = .32$)	B	$SE(B)$	Lower	Upper	β	sr^2	p
<u>Active avoidance coping</u>	0.78	0.28	0.22	1.34	.20	.03	0.006
Active confronting coping	-0.07	0.19	-0.47	0.32	-.27	.00	
Passive avoidance coping	-0.60	0.32	-1.23	0.02	-.13	.01	
Meaning-based coping	0.03	0.24	-0.44	0.51	.11	.00	
<u>Acceptance/Experiential avoidance</u>	-0.31	0.12	-0.55	-0.71	-.28	.03	0.012
<u>Cognitive Fusion</u>	0.28	0.14	0.01	0.55	.22	.02	0.042
<u>Mindfulness</u>	-0.17	0.07	-0.32	-0.32	-.20	.02	0.017
<u>Values Consistency</u>	-0.12	0.05	-0.22	-0.02	-.16	.02	0.018

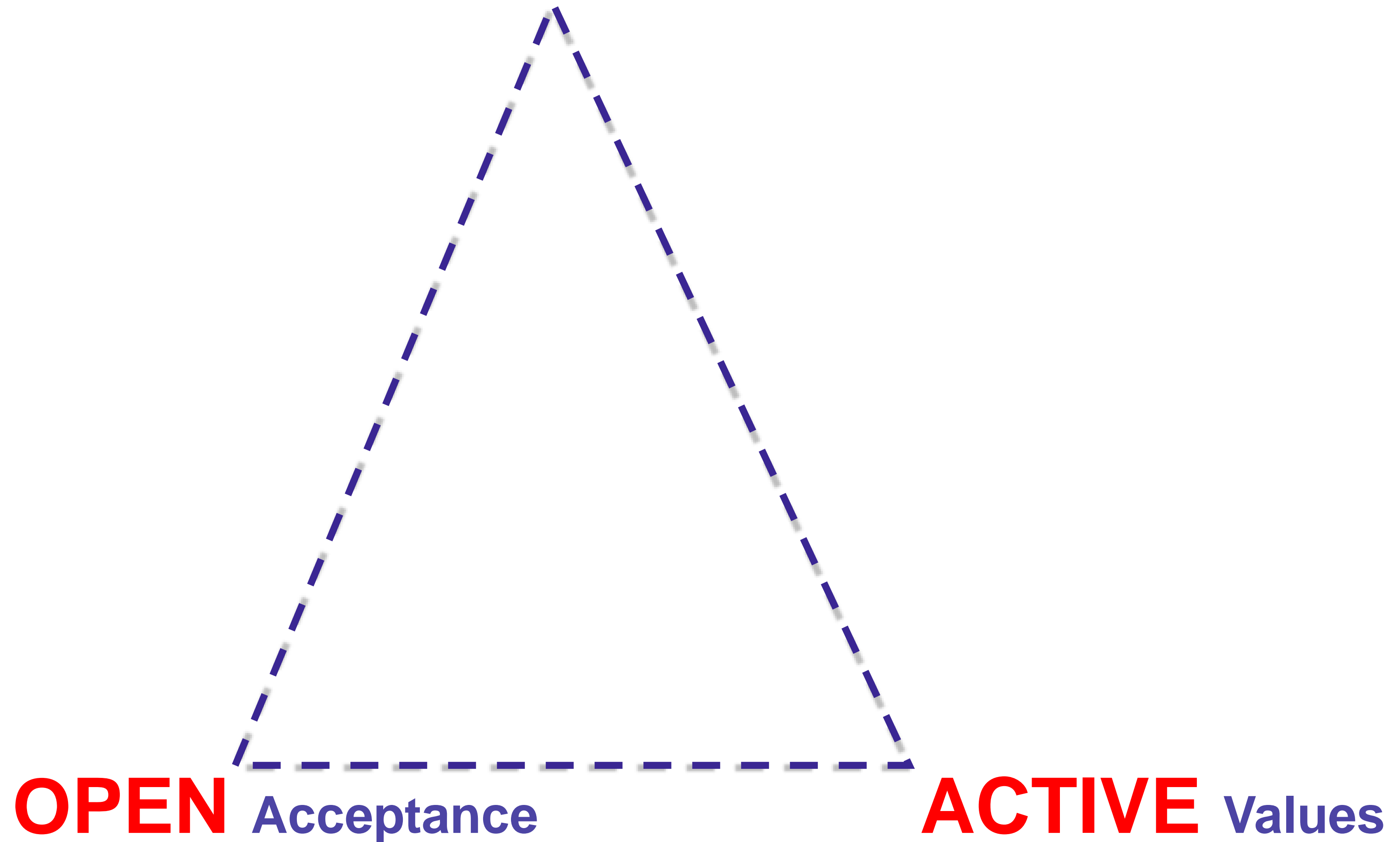
Note. $R^2 = 61.0\%$ ($R^2_{\text{adj}} = 58.0\%$). CI = confidence interval.

More relationships between variables:

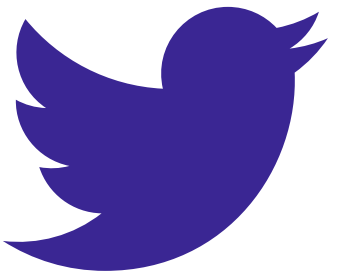
- **Depression** scores were negatively correlated with values consistency scores (Adjusted $R^2 = 0.50$; $p < .001$) and acceptance scores ($p = .004$).
- **Anxiety** scores were negatively correlated with acceptance (Adjusted $R^2 = 0.35$; $p = .003$) and mindfulness ($p = .008$).
- **Stress** scores were positively correlated with cognitive fusion (Adjusted $R^2 = 0.46$; $p = .040$) and negatively correlated with acceptance ($p = .016$), mindfulness ($p = .031$), and values consistency ($p = .019$).

The Psychological Flexibility Model

Cognitive Fusion **AWARE** Mindfulness



Implications



- The development of a specific ACT group-based treatment program.
- Encourage medical providers to observe avoidance coping style, and to assess experiential avoidance, cognitive fusion, mindfulness in order to identify individuals facing infertility challenge at a greater need for psychological support.
- More thorough assessments of values and value-driven actions in the face of infertility is needed both in clinical practice and research.
- **Primary goals of clinical practice** with women dealing with infertility could focus on combination of acceptance, defusion, self-as-context and values work to produce **self-compassion**, utilising ACT protocols for other chronic medical conditions (Gillanders et al., 2014).

Future Directions

- Further exploration if meaning-based coping and compassion-focused reconciliation are similar processes.
- Variables of psychological flexibility was at a **baseline**. How these relationships may change post - ACT treatment, and at follow-ups at a greater period of time?
- To obtain information from **the male partner and couples**.

Limitations

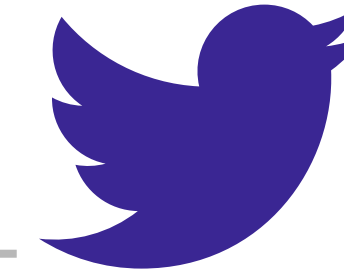
- Cross-sectional findings.
- Self-report measures limiting an interpretation of results, due to a possibility of **response biases**.
- **Limits of generalisability** of the results.

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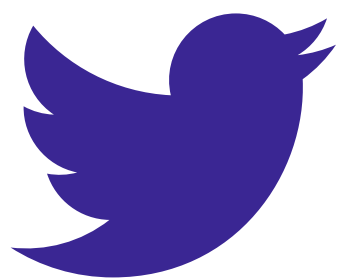
Questions?



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What were the results?

Actual power of this study for the two hierarchical regression analysis performed to test the research hypotheses (for an alpha of .05, an effect size of .25) achieved .99

The assumption of tests of independence of errors, assumptions of normality of distribution, homoscedasticity and linearity of residuals were met.

Preliminary analyses found no demographic variables that covaried with the dependent or independent variables.

Participant's scores on Marlow-Crowne the Social-Desirability Scale were not covaried with the dependent or independent variables.

Thus in order to maximise power, **neither demographic variables, no social desirability data were entered into the hierarchical regression analysis.**

Quantitative Measures used

Variable	Measure	Validity
Psychological adjustment	Depression Anxiety and Stress Scales – 21 (DASS-21; Lovibond & Lovibond, 1995).	In this study, the Cronbach's alpha for the total score was .93, indicating high internal consistency.
Fertility-related quality of life	Fertility Quality of Life Questionnaire (FertiQoL; Boivin, Takefman, & Braverman, 2011).	In this study, a reliability analysis was performed on the core module subscale, revealing a high internal consistency ($\alpha = .85$).
Acceptance	Acceptance and Action Questionnaire – second edition (AAQ-II; Hayes et al., 2004).	Cronbach's alpha coefficient found for the overall acceptance score was .86, indicating high internal consistency.
Mindfulness	Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003).	The mindfulness scale revealed a Cronbach's alpha of .91, indicating high internal consistency.
Cognitive fusion	Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014).	The Cronbach's alpha coefficient for the overall cognitive fusion score was .95, indicating high internal consistency.
Coping styles	Copenhagen Multi-Centre Psychosocial Infertility (COMPI) questionnaire (COMPI; Schmidt, 2006).	Active-avoidance coping ($\alpha = .65$), active-confronting coping scale .80, the passive-avoidance coping scale .75, and the meaning-based coping scale .80.

Research design

A cross-sectional study in which we explore the relationships among variables of psychological flexibility, coping strategies, psychological distress, and quality of life.

This study design does not allow definitive conclusions about causal relationships between the independent and dependent variables to be drawn.

There was no intervention, no control group, therefore no randomisation was needed.

The study was approved and conducted in accordance with the ethical standards of the Bond University Human Research and Ethics Committee and all participating sites.

Power Analyses of the sample size

Assuming a medium effect size of 0.25 based on previous studies with alpha level set at 0.05 (Gourounti et al., 2012; Xiaoli, et al., 2016), the required sample size for hierarchical multiple regression analyses with a statistical power of 0.80 was 65. Given that the sample size of the current study was 105, our sample size is adequate as determined by G-Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009). Actual power of this study achieved (for an alpha of 0.05, an effect size of 0.25, and a sample size of 90 women) was 0.99 for the hierarchal regression analysis.

2 Hierarchical regression analyses were performed to test the research hypotheses.

What were the results?

Preliminary Analyses

For the first hierarchical regression the Durbin Watson statistic of 1.60 and for the second hierarchical regression 2.04 indicated that **the assumption of tests of independence of errors** was met, as the value was within the range of 1.5 and 2.5.

There was no evidence of **multicollinearity**, with all tolerance levels above .20 and all variance inflation factor (VIF) values below 10.

The Mahalanobis distance was used to identify the presence of **multivariate outliers**. Results revealed only one multivariate outlier in each analysis, however analyses were run with and without the participant and no difference in results was found, thus the outlier was included.

An inspection of the histograms and scatterplots indicated that the **assumptions of normality of distribution, homoscedasticity and linearity of residuals** were met.

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Previous research and theory determined the order of entry of predictor variables.

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What were the results? Psychological distress

Hierarchical Regression assessing the predictive utility of coping subscales and aspects of psychological flexibility in relation to Psychological Distress

Predictor	<i>B</i>	<i>SE(B)</i>	95% CI for <i>B</i>		β	<i>sr</i> ²	<i>p</i>
			Lower	Upper			
Step 1 ($R^2_{\text{chg}} = .28$)							
Active avoidance coping	3.55	0.66	2.23	4.87	.46	.22	0.000
Active confronting coping	-0.54	0.52	-1.57	.48	-.10	.01	
Passive avoidance coping	-0.86	0.83	-2.50	0.77	-.09	.01	
Meaning-based coping	-0.97	0.62	-2.19	0.26	-.15	.02	

What were the results? Psychological distress

	<i>B</i>	<i>SE(B)</i>	Lower	Upper	β	<i>sr</i> ²	<i>p</i>
Step 2 ($R^2_{\text{chg}} = .30$)							
Active avoidance coping	1.54	0.58	0.40	2.68	.20	.07	0.009
Active confronting coping	-0.25	0.40	-1.05	0.55	-.05	.00	
Passive avoidance coping	-1.23	0.65	-2.51	0.05	-.13	.03	
Meaning-based coping	-0.3	0.49	-1.01	0.94	-.00	.00	
Acceptance/Experiential avoidance	-0.68	0.25	-1.18	-0.19	-.30	.07	0.007
Cognitive Fusion	0.57	0.28	0.06	1.13	.23	.04	0.041
Mindfulness	-0.34	0.15	-0.30	-0.05	-.19	.05	0.024

Note. $R^2 = 58.5\%$ ($R^2_{\text{adj}} = 55.5\%$). CI = confidence interval.

The Psychological Flexibility Model

Acceptance / Experiential Avoidance

Mindfulness / Attachment to the self-context

Cognitive Defusion / Cognitive Fusion

Values-based actions / Lack of engagement