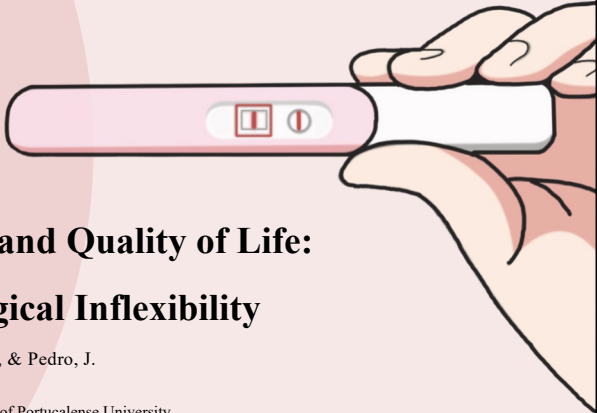





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## Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility

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IV CINEICC International Congress  
2023

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Introduction	Method
<p><b>Infertility</b> → Is a “disease characterized by the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or due to an impairment of a person’s capacity to reproduce either as an individual or with his/her partner”.</p> <p style="text-align: right; font-size: small;">(Zegers- Hochschild et al., 2017)</p> <p>Causes: Male and/or female factor or unknown factors</p> <p style="text-align: right; font-size: small;">(Zegers- Hochschild et al., 2017)</p> <p><b>Relevance:</b></p> <div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  <p>Increase in the number of diagnosis.</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>Its impact on subjects’ life domains (e.g., physical, psychological, and financial)</p> </div> </div> <p style="text-align: center; font-size: small;">(Njogu et al., 2022)</p> <p style="text-align: right;">} There is an urgent need for more research in this context.</p>	 <p>An estimated 48 million couples in reproductive age suffer from infertility worldwide.</p> <p style="text-align: right; font-size: small;">(Mascarenhas et al., 2012)</p>

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Infertility diagnosis</p> </div> <div style="text-align: center;"> <p>Use of medically assisted reproductive treatments</p> </div> </div> <p style="text-align: center; margin-top: 10px;">Stress-inducing and potentially painful experience</p> <p style="font-size: small; margin-top: 5px;">(Rooney &amp; Domar, 2018; Olivius et al., 2004; Luk &amp; Loke, 2015)</p>	<div style="text-align: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; padding: 5px; display: inline-block;">Infertility-related stress</div> </div> <p style="font-size: small; margin-top: 10px;">Is conceptualised as an overwhelming mental, emotional or physical stress resulting from the desire, but inability, to conceive a child and/or as a result of medically assisted reproductive treatments, which may impact individuals' social, personal and marital domains.</p> <p style="font-size: x-small; margin-top: 5px;">(Schmidt, 2006a ; Woods et al., 2022)</p>
<p><b><u>What the literature suggests (regarding age):</u></b></p> <ul style="list-style-type: none"> <li>• The literature is not congruent as to the role of age in infertility-related stress:           <ul style="list-style-type: none"> <li>- Some studies suggest that younger women have higher levels of stress related to infertility; <span style="float: right; font-size: x-small;">(e.g., Teklemicheal et al., 2022)</span></li> <li>- Others suggest that older women have higher levels of infertility-related stress. <span style="float: right; font-size: x-small;">(e.g., Cesta et al., 2018; Matasariu et al., 2017)</span></li> </ul> </li> </ul>	

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2>	
<p><b><u>Theoretical framework:</u></b> <span style="border: 1px solid #ccc; padding: 2px 5px; display: inline-block;">Transactional Theory of Stress and Coping</span></p> <p style="font-size: x-small; margin-left: 300px;">(Lazarus &amp; Folkman, 1984)</p>	
<p><b>Stress</b> → Relationship between the person and the environment that one interacts with and evaluates as demanding or as a cost to one's well-being.</p>	
<p>Possible stressors</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">             Infertility diagnosis and/or the medically assisted reproductive treatments           </div> <p style="font-size: small;">(1<sup>st</sup> section)</p>	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Primary appraisal</p> </div> <div style="text-align: center;"> <p>Threatening stressor</p> <p>Challenging stressor</p> </div> <div style="text-align: center;"> <p>Irrelevant stressor</p> <p>Benign/positive stressor</p> </div> </div> <p style="text-align: right; margin-top: 10px;">Due to commitment to parenthood and the uncertainty about whether they will be able to achieve it.</p> <p style="text-align: right; margin-top: 10px;">Inferfity-related stress</p> <p style="font-size: x-small; text-align: right;">(Lazarus &amp; Folkman, 1984; Woods et al., 2022)</p>

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2>  <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="border: 1px solid #ccc; padding: 5px 10px; background-color: #f2c0c0;">Infertility-related stress</div> <span style="font-size: 24px;">→</span> <div style="text-align: center;"> <p>Has been associated to <span style="border: 1px solid #ccc; padding: 2px 5px; background-color: #f2c0c0;">quality of life.</span></p> <div style="margin-top: 10px;"> <span style="font-size: 18px;">↓</span> <p>“Individual’s perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to his/her goals, exceptions, standards, and concerns”.</p> <p style="font-size: 10px; margin: 0;">(WHOQOL Group, 1994)</p> </div> </div> </div>	

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2>	
<p><u>What the literature suggests:</u></p> <ul style="list-style-type: none"> <li>• Infertility-related stress seems to negatively affect the quality of life of people dealing with fertility problems. <span style="float: right; font-size: 10px;">(Kim et al.,2016; Ngai &amp; Loke, 2021)</span></li> <li>• Personal, marital, and social stress (i.e., domains of the infertility-related stress construct) seem to be negatively associated with quality of life in women undergoing fertility treatments. <span style="float: right; font-size: 10px;">(Swift et al., 2021)</span></li> </ul> <p><u>What the literature suggests (regarding age):</u></p> <ul style="list-style-type: none"> <li>• The literature is not congruent as to the role of age in quality of life:               <ul style="list-style-type: none"> <li>-Some studies, in the context of infertility, show that older women have lower levels of quality of life; <span style="float: right; font-size: 10px;">(e.g., Barnawi et al., 2020; Song et al., 2021; Zurlo et al., 2020)</span></li> <li>- Others show that older women present higher levels of quality of life. <span style="float: right; font-size: 10px;">(e.g., Chachamovich et al., 2007)</span></li> </ul> </li> </ul>	

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2> <p><b>Theoretical framework:</b> Transactional Theory of Stress and Coping <small>(Lazarus &amp; Folkman, 1984)</small></p> <p style="text-align: right; font-size: small;"><small>(Lazarus &amp; Folkman, 1984; Swift et al., 2021)</small></p>	

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Introduction	Method
<h2 style="margin: 0;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2> <p><b>Acceptance and Commitment Therapy</b> → There are six interdependent core processes. <small>(Harris, 2009; Hayes et al., 2012)</small></p> <p style="margin-left: 40px;">↓</p> <p style="margin-left: 40px;">Aim: Promote greater psychological flexibility, creating a rich, full, and meaningful life while accepting the inevitable and underlying suffering of life. <small>(Harris, 2009; Hayes et al., 2012)</small></p> <p>When one or more of these nuclear processes are not present → <b>Psychological Inflexibility</b> <small>(Hayes et al., 2012)</small></p> <p style="margin-left: 40px;">↓</p> <ul style="list-style-type: none"> <li>• Is a transdiagnostic regulatory mechanism involved in the development and maintenance of several psychological difficulties. <small>(Levin et al., 2014; Masuda et al., 2014)</small></li> <li>• It refers to an effort to control, through verbal/cognitive processes such as rules and relational networks, psychological reactions in an attempt to alter the form, frequency or situational sensitivity of painful private events in ways that are inconsistent with individuals' own values and what is important to them (i.e., thoughts, emotions or other internal experiences). <small>(Bond et al., 2011; Hayes et al., 2006)</small></li> </ul>	

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Introduction	Method
<h2 style="text-align: center;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2> <div style="border: 1px solid #f2c0c0; padding: 5px; margin-bottom: 10px; display: inline-block;">Acceptance and Commitment Therapy</div> <p><b>Psychological Inflexibility</b> → Therefore, this mechanism is the tendency to avoid, control or minimise the painful experiences when distressing emotions and thoughts emerge. <small>(Tavakoli et al., 2019)</small></p> <p style="text-align: center;">↓</p> <p>It may become a rigid and inflexible pattern, becoming a maladaptive process associated with psychopathology. <small>(Harris, 2009; Hayes et al., 1996)</small></p> <p style="text-align: center;">↪</p> <p>Psychological inflexibility is the cause of psychological distress and maladaptive functioning. <small>(Hayes et al., 2012)</small></p>	

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Introduction	Method
<h2 style="text-align: center;">Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</h2> <p><u>Theoretical framework:</u> <span style="border: 1px solid #f2c0c0; padding: 2px;">Transactional Theory of Stress and Coping</span> <small>(Lazarus &amp; Folkman, 1984)</small></p> <p>(Final section)</p> <div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;"> <p>Infertility-related stress →</p> <div style="border: 1px solid #f2c0c0; padding: 5px; background-color: #f2c0c0;">Secondary appraisal</div> <p>→</p> </div> <div style="text-align: center;"> <p>✗</p> <p>- This cycle perpetuates itself and may have a significant impact on the lives of individuals.</p> </div> <div style="text-align: center;"> <p>e.g.,</p> <div style="border: 1px solid #f2c0c0; padding: 5px; background-color: #f2c0c0; border-radius: 10px;">Worst Quality of life</div> </div> </div> <div style="text-align: center; margin-top: 10px;"> <p>⚠ Psychological Inflexibility</p> <p>↓</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>Once as it is a regulatory mechanism that can become maladaptive, may perpetuate the cycle, not giving rise to the exploration of new ways to decrease the level of stress, significantly impacting the quality of life of individuals.</p> </div> <div style="width: 35%; border-left: 1px solid #f2c0c0; padding-left: 10px;"> <p>It can be one possible pathway that can help to explain the relationship between infertility-related stress and quality of life.</p> </div> </div> </div>	

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Introduction	Method
<p><b>Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</b></p> <p><b>Psychological Inflexibility as a mediator</b></p> <p>In infertility context:</p> <p>Several studies have explored the mediating role of psychological inflexibility in the relationship between infertility-related stress and other mental health constructs (e.g., depressive and anxious symptomatology) and indirect effects were found, suggesting that psychological inflexibility was a pathway that explained the relationship between the variables explored. (e.g., Cardoso et al., 2021; Carolino et al., 2021;21)</p> <p>Another study explored the mediating role of psychological inflexibility in the relationship between psychopathologic symptoms and and pain intensity in endometriosis, and an indirect effect was found, suggesting that psychological inflexibility was a pathway that explained the relationship between the variables explored. (e.g., Galhardo et al., 2021)</p>	

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Introduction	Method
<p><b>Infertility-related Stress and Quality of Life: The Role of Psychological Inflexibility</b></p> <p><u>What the literature suggests:</u></p> <p>In the context of infertility, psychological inflexibility and quality of life have not yet been related.</p> <p>However,</p> <ul style="list-style-type: none"> <li>• In the context of type II diabetes: <ul style="list-style-type: none"> <li>- The variables psychological inflexibility and self-compassion were explored, with psychological inflexibility being the only variable associated with quality of life, suggesting that higher levels of psychological inflexibility indicate lower levels of quality of life. (Kiliç et al., 2022)</li> </ul> </li> <li>• In the context of mental disorders: <ul style="list-style-type: none"> <li>- It has been suggested that psychological inflexibility may negatively impact individuals' quality of life. (Ruenda &amp; Valls., 2020)</li> </ul> </li> </ul>	

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Introduction	Method
<p><b>Aims</b></p> <p>To analyze the associations between infertility-related stress and quality of life, and specifically examine psychological inflexibility as avenue through which infertility-related stress is linked to quality of life in individuals with fertility problems</p> <p><b>Hypothesis</b></p> <p>Infertility-related stress to be related to subjects' quality of life directly and through psychological inflexibility.</p> <p><b>Figure 1</b> <i>Proposed Model of Moderated Mediation</i></p> <pre> graph TD     A[Age] --&gt; B[Psychological Inflexibility]     A --&gt; C[Quality of Life]     A --&gt; D[Infertility-related Stress]     D --&gt; B     D --&gt; C     B --&gt; C     </pre>	<div style="border: 1px solid #ccc; border-radius: 15px; background-color: #f2c0c0; padding: 10px; margin-bottom: 10px;"> <p><b>Exploratory aim:</b></p> <ul style="list-style-type: none"> <li>To understand whether the mediation model works equally in 2 different age groups:</li> </ul> <div style="border: 1px dashed #ccc; border-radius: 10px; padding: 5px; display: inline-block; margin: 5px;"> <p>&lt; 35 years ≥ 35 years</p> </div> </div> <div style="border: 1px dashed #ccc; border-radius: 10px; padding: 10px; margin-bottom: 10px;"> <p><i>Why this division?</i></p> <p>Female fertility declines with age, beginning in the 30s and more rapidly from 35 onwards - exponentially increasing the risk of pregnancy loss, ectopic pregnancy and obstetric and neonatal complications.</p> <p><small>(Browkmans et al., 2006; ESHRE Capri Workshop Group; Kenyon &amp; Bewley, 2009; Nybo et al., 2000; Trawick et al., 2021)</small></p> </div>

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Introduction	Method	
Participants and Procedures	Measures	Data Analysis
<p>The study was submitted to the Ethics Committee of the Portucalense University;</p> <p>Sample collection: November 2022 - February 2023.</p> <div style="border: 1px solid #90a040; border-radius: 20px; background-color: #e0f0d0; padding: 15px; margin: 10px auto; width: 80%;"> <p><b><u>Inclusion Criteria:</u></b></p> <ul style="list-style-type: none"> <li>Men and women of reproductive age and over 18 years old;</li> <li>With a medical diagnosis of infertility or trying to conceive for more than one year;</li> <li>Being married or living with a partner;</li> <li>Being in a heterosexual relationship.</li> </ul> </div>		

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Introduction	Method	
Participants and Procedures	Measures	Data Analysis

Self-selection sampling

↓

**Non-probabilistic sampling method.**

When researchers specify required inclusion and exclusion criteria and persons from the population choose to participate based on free will.  
(Berndt, 2020)

The sample was obtained through:

- Dissemination on social networks (i.e., Instagram and Facebook);
- Through flyers distributed in medically assisted reproductive treatments clinics.

It was given:

Informed consent;  
Guarantee of confidentiality and anonymity of the data collected.

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Introduction	Method	
Participants and Procedures	Measures	Data Analysis

**Tabel 1.**  
*Information on Measures Used*

Measure	Construct	Cronbach's $\alpha$
<b>Clinical and Sociodemographic Questionnaire</b>		
COMPI Fertility Problem Stress Scale <small>(Schmidt, 2006a, Schmidt et al., 2005)</small>	Infertility-related stress	.89
Acceptance and Action Questionnaire – II <small>(Bond et al., 2011; Portuguese version: Pinto-Gouveia et al., 2012)</small>	Psychological inflexibility	.90*
EUROHIS-QOL-8 <small>(Power, 2003; Portuguese version: Pereira et al., 2011)</small>	Quality of life	.83*

*Note.* \*Portuguese version.

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Introduction		Method	
Participants and Procedures	Measures	Data Analysis	
<p><b>IBM SPSS Statistics (Versão 27)</b></p> <p>Descriptive analyses: Correlations: Spearman Pearson</p> <p><b>PROCESS macro</b> (Hayes, 2013)</p> <p>Moderated Mediation Model to test the hypothesis. Variables were entered:</p> <ul style="list-style-type: none"> <li>Independent variable: Infertility-related stress</li> <li>Dependent variable: Quality of life</li> <li>Mediating variable: Psychological inflexibility</li> <li>Moderating variable: Age</li> </ul>			

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**Thank you very much for your attention!**



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