

论著·临床研究

不孕(育)症夫妻二元应对异质性研究及相关因素分析

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[摘要] **目的**·采用潜在剖面分析法探索辅助生殖技术 (assisted reproductive technology, ART) 治疗前不孕(育)症夫妻二元应对水平的潜在剖面, 并探讨不同剖面间的差异及相关因素。**方法**·招募2023年9月至11月在上海交通大学医学院附属仁济医院生殖医学中心接受ART治疗的不孕(育)症初诊夫妇, 应用一般资料问卷、生育压力量表 (Fertility Problem Inventory, FPI)、二元应对评估工具 (Dyadic Coping Inventory, DCI)、生育生活质量量表 (Fertility Quality of Life Tool, FertiQoL量表) 进行评估。采用潜在剖面分析探索不孕(育)症夫妻治疗前二元应对的剖面类型, 比较不同剖面之间的一般特征, 及FPI和FertiQoL量表得分; 采用多元Logistic回归分析不同二元应对剖面的相关因素。**结果**·共纳入257对不孕(育)症夫妻, 女性平均年龄 (30.15±3.07) 岁, 男性平均年龄 (31.82±3.82) 岁, 平均婚龄 (3.75±2.16) 年, 平均不孕 (2.90±1.92) 年; 男方导致不孕118对、女方导致不孕109对、男女共患不孕(育)症30对; 男性DCI平均得分 (128.25±19.15) 分, 女性 (129.91±18.32) 分。根据二元应对水平, 257对夫妻可分为4个潜在剖面: 共同积极组 (153对, 59.5%)、共同消极组 (85对, 33.1%)、男方积极组 (12对, 4.7%) 及男方消极组 (7对, 2.7%); 不同剖面不孕(育)症夫妻的年龄、FPI得分、FertiQoL量表得分、再婚比例间差异均具有统计学意义 (均 $P<0.05$)。多元Logistic回归分析结果显示, 以共同积极组为参照, 共同消极组的男方年龄更大 ($OR=1.122$, 95% CI 1.004~1.254, $P=0.036$)、男女双方FPI得分更高 (男: $OR=1.019$, 95% CI 1.003~1.035, $P=0.018$; 女: $OR=1.020$, 95% CI 1.004~1.036, $P=0.015$)、男方FertiQoL量表得分更低 ($OR=0.966$, 95% CI 0.937~0.996, $P=0.029$)。**结论**·接受ART治疗前不孕(育)症夫妻的二元应对水平可分为4个剖面类型; 与共同积极应对夫妻相比, 男性生育压力大、年龄大、感知的生育生活质量低, 以及女性生育压力大均是夫妻共同消极应对的危险因素。

[关键词] 二元应对; 不孕(育)症; 潜在剖面分析; 生育压力量表; 生育生活质量量表**[DOI]** 10.3969/j.issn.1674-8115.2024.06.010 **[中图分类号]** R473.71 **[文献标志码]** A

Heterogeneity and related factors of dyadic coping in infertility couples

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[Abstract] **Objective**·To analyze infertility couples, dyadic coping level by using latent profile analysis (LPA), and explore the heterogeneity and related factors of different profiles. **Methods**·From September to November 2023, 257 newly diagnosed infertility couples in pre-infertility treatment with assisted reproductive technology (ART) were recruited from Reproductive Medicine Center, Renji Hospital, Shanghai Jiao Tong University School of Medicine. All couples were evaluated by using general information questionnaire, Fertility Problem Inventory (FPI), Dyadic Coping Inventory (DCI), and Fertility Quality of Life (FertiQoL) Tool. LPA was used to explore the dyadic coping profiles of the couples before ART treatment, and general information, FPI scores and FertiQoL scores were compared among the profiles. Multinomial Logistic regression analysis was used to explore the related factors of different profiles. **Results**·A total of 257 couples with infertility were included, with an average age of (30.15±3.07) years for females, (31.82±3.82) years for males, (3.75±2.16) years for marriage, and (2.90±1.92) years for infertility; there were 118 couples caused by male infertility, 109 couples caused by female infertility, and 30 couples caused by both infertility; the average DCI score for males was (128.25±19.15) points, while for females it was (129.91±18.32) points. According to the dyadic coping levels, the infertile couples were divided into four profiles: common positive coping group (153 couples, 59.5%), common negative coping group (85 couples, 33.1%), male positive coping group (12 couples, 4.7%), and male negative coping group (7 couples, 2.7%). There were statistically significant differences in the infertile couples' age, FPI score, FertiQoL score, and

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remarriage rate among the four profiles ($P<0.05$). Multinomial Logistic regression analysis results showed that, with the common positive coping group as the reference, the common negative coping group had older men ($OR=1.122$, 95%CI 1.004–1.254, $P=0.036$), higher FPI scores for both males and females (male: $OR=1.019$, 95%CI 1.003–1.035, $P=0.018$; female: $OR=1.020$, 95%CI 1.004–1.036, $P=0.015$), and lower FertiQoL scores for males ($OR=0.966$, 95%CI 0.937–0.996, $P=0.029$). **Conclusion** There are four types of dyadic coping profiles in infertile couples before ART treatment. Compared with the common positive coping couples, higher reproductive pressure, elder age, and lower perceived fertility quality of life of males, and higher reproductive pressure of females are all risk factors for common negative coping couples.

[Key words] dyadic coping; infertility; latent profile analysis (LPA); Fertility Problem Inventory (FPI); Fertility Quality of Life (FertiQoL) Tool

世界卫生组织(WHO)将不孕症定义为一种生殖系统疾病,是指经过12个月或更长时间的无保护的常规性交后仍未能实现临床妊娠。根据WHO^[1]报道,不孕(育)症是全球卫生问题,全球每6个人中就有1个人受到不孕(育)症影响。在中国,育龄期夫妻不孕不育发生率为10%~15%^[2]。辅助生殖技术(assisted reproductive technology, ART)是用于治疗不孕(育)症的主要方法^[3],治疗后的妊娠率可达44%~57%。多项研究发现,不孕(育)症夫妻在经历ART治疗时面对多重压力^[4-7],威胁到他们的心理健康^[8]。二元应对(dyadic coping)是指伴侣面对对方来自关系之外环境的压力时的应对反应^[9],是不孕(育)症夫妻处理ART治疗期间压力、维系双方身心健康的共同应对方式。有研究^[10]显示,不孕(育)相关压力与生育生活质量呈负相关,而二元应对可通过调节不孕(育)症夫妻对压力的感知影响其生育生活质量。不孕(育)症夫妻的二元应对受发展因素及情景因素的影响^[9]。发展因素是指疾病发展阶段及某生命周期阶段^[11];情景因素则是指夫妻文化差异、性别差异、关系质量及影响夫妻压力评估及应对的疾病类型等^[12]。二元应对注重夫妻共同应对,基于二元应对的干预通过改善夫妻关系及双方压力沟通以达到共同积极应对的目的^[13],现有研究缺乏对夫妻二元应对水平的整体评价。因此,本研究将不孕(育)症夫妻视为整体,对其治疗前二元应对水平采用潜在剖面分析方法进行分类,并分析不孕(育)症夫妻不同二元应对剖面的相关因素,旨在为形成个性化夫妻二元应对干预方案、引导夫妻共同积极应对不孕(育)压力提供实证基础。

1 对象和方法

1.1 研究对象与样本量计算

本研究采用便利抽样方法,以2023年9月至

11月于上海交通大学医学院附属仁济医院生殖医学中心接受ART的初诊夫妻为研究对象。纳入标准:

①无ART治疗经历。②夫妻年龄均 ≥ 18 岁,且女性年龄 ≤ 35 岁^[14]、男性年龄 ≤ 50 岁^[15]。③具备认知能力,可配合问卷填写并志愿参加研究。④会应用互联网门诊进行远程随访。排除标准:①有精神性疾病史。②罹患肿瘤、残疾等重大疾病。③初诊评估女方卵巢低反应,抗米勒管激素(anti-Müllerian hormone, AMH) <1.25 ng/mL,或确诊为多囊卵巢。④近半年内经历重大创伤事件。⑤已有子女,包括再婚前已有子女。样本量一般为研究变量的5~10倍,加上10%样本流失率,估计样本量为132~262对夫妻。

1.2 研究方法

1.2.1 研究工具

(1)一般资料问卷 人口学资料包括年龄、是否为再婚、职业、文化程度、经济收入等,疾病因素包括不孕(育)病因、拟行治疗方案等。

(2)生育压力量表 生育压力量表(Fertility Problem Inventory, FPI)是由NEWTON等^[16]于1999年编制,用于评估与不孕(育)症相关压力水平的量表,包括社会问题、关系问题、为人父母的需求、拒绝无子女生活方式和性问题等5个维度46个条目的自我评价量表。采用Likert 6分制进行评分,从1分到6分依次表示“我不同意”至“我完全同意”,其中反向问题18个。总分46~276分,分数越高,说明与不孕(育)相关的压力越大。FPI的重测信度为0.83(女性)、0.84(男性),总体Cronbach's α 系数为0.93^[16]。中文版(M-FPI)的Cronbach's α 系数为0.81^[17]。本研究中,FPI的Cronbach's α 系数在女性和男性中分别为0.74及0.77。

(3)二元应对评估工具 二元应对评估工具(Dyadic Coping Inventory, DCI)是由BODENMANN

等^[18]于2008年编制、由XU等^[19]于2016年汉化用于测量夫妻应对压力水平及策略的工具。DCI依据二元应对的系统交易模型对压力沟通、相互支持、共同应对、代办应对和消极应对等5个维度进行测评。共有37个条目,采用Likert 5级评分法,消极应对条目为反向计分。总分为35~175分,得分<111分表示低于正常水平,111~145分表示正常范围,>145分表示高于正常水平。Cronbach's α 系数为0.91^[19-20]。本研究,DCI的Cronbach's α 系数在女性和男性中分别为0.84及0.85。

(4) 生育生活质量量表 生育生活质量量表(Fertility Quality of Life Tool, FertiQoL量表)由BOIVIN等^[21]于2011年编制,用于测量生育相关生活质量的工具,中国香港学者^[22]于2016年将其中文版应用于香港地区不孕症妇女的调查。该量表由核心的生育生活质量及治疗相关生活质量两部分组成,后者在开始治疗后使用。核心的生育生活质量包括精神/身体、情绪、夫妻关系、社会关系4个维度,共34个条目;治疗相关生活质量包括治疗环境及治疗耐受性2个维度,10个条目。两部分量表均采用Likert 5级评分法,总分为0~100分,得分越高表明生育生活质量越好。中文版FertiQoL量表的Cronbach's α 系数为0.93^[23-24]。本研究中,FertiQoL量表的Cronbach's α 系数在女性及男性中分别为0.83及0.87。

1.2.2 数据采集方法 本研究通过互联网医院发放评估表格进行数据采集,采集数据均作为患者病史资料保存。在初诊不孕(育)症夫妻建立生殖病例时,由经过培训的科研护士向其介绍研究目的及内容,获取知情同意后指导夫妻使用互联网医院“随访”功能填写问卷。

1.3 统计学分析

使用Microsoft Excel v16.83建立数据库并导出病例资料,包括一般资料、FPI、DCI、FertiQoL量表。定性资料用频数(百分比)表示,定量资料用 $\bar{x} \pm s$ 表示。剖面分析前,采用Shapiro-Wilk检验及Kolmogorov-Smirnov检验对不孕(育)症夫妻治疗前DCI得分进行正态性分析,使用R语言软件v4.3.1对不孕(育)症夫妻治疗前二元应对水平进行潜在剖面分析,从潜在剖面数为1的模型开始估计,逐步增加剖面数,得到每个模型的参数估计结果和模型拟合指

数。采用赤池信息准则(Akaike information criterion, AIC)、贝叶斯信息准则(Bayesian information criterion, BIC)、调整后的贝叶斯信息准则(adjusted Bayesian information criterion, aBIC)和熵值(entropy)来判断分类模型拟合精确度。在剖面分析中,AIC、BIC、aBIC数值越小,熵值(取值范围0~1)越接近1,表示模型拟合度越好。一般认为熵值>0.8可以接受,其分类准确率>90%。采用LMR似然比检验(Lo-Mendell-Rubin likelihood ratio test, LMRT)和基于Bootstrap的似然比检验(Bootstrap likelihood ratio test, BLRT)评估潜在剖面模型的分

类正确率, P 值<0.05表明 k 个剖面的模型显著优于 $(k-1)$ 个剖面的模型^[25],同时结合临床意义对剖面数量做进一步确认。比较不同不孕(育)症夫妻二元应对剖面的一般资料、FPI得分、FertiQoL量表得分,定量资料采用方差分析,并采用LSD检验进行组间两两比较,定性资料采用 χ^2 检验。将差异具有统计意义的变量纳入多元Logistic回归分析模型,探索不同剖面异质性。检验水准 $\alpha=0.05$ 。

2 结果

2.1 不孕(育)症夫妻一般资料

共招募到267对接受ART的初诊不孕(育)症夫妻,其中10对夫妻因女方患有多囊卵巢综合征、AMH<1.25 ng/mL等原因予以剔除,最终纳入257对,入组率96.25%。257对不孕(育)症夫妻中,女性平均年龄(30.15 ± 3.07)岁,男性平均年龄(31.82 ± 3.82)岁,平均婚龄(3.75 ± 2.16)年,平均不孕(2.90 ± 1.92)年;男方导致不孕118对(45.91%)、女方导致不孕109对(42.41%)、男女共患不孕(育)症30对(11.68%);治疗方式中体外受精(*in vitro* fertilization, IVF)143对(55.64%)、卵母细胞胞浆内单精子显微注射(*intracytoplasmic sperm injection*, ICSI)76对(29.57%)、胚胎植入前基因检测技术(*pre-implantation genetic testing*, PGT)38对(14.79%)。

2.2 不孕(育)症夫妻二元应对水平及潜在剖面分析

2.2.1 不孕(育)症夫妻二元应对总体水平 257对夫妻中,男性平均得分为(128.25 ± 19.15)分,女性

平均得分(129.91±18.32)分。采用Shapiro-Wilk检验及Kolmogorov-Smirnov检验对男、女DCI总分进行正态性检验。结果显示女性DCI总分2种检验P值均大于0.05,符合正态分布;男性DCI总分P值均小

于0.05,但峰度小于10且偏度绝对值小于3,仍可接受为正态分布。不孕(育)症夫妻DCI得分分布见表1。

表1 不孕(育)症夫妻DCI得分分布

Tab 1 Summary of statistics of infertility couples' DCI scores

Variable	$\bar{x}\pm s$	P_5	P_{25}	P_{50}	P_{75}	P_{90}
Female DCI score/point	129.91±18.32	100.90	118.00	131.00	142.00	152.00
Male DCI score/point	128.25±19.15	99.90	113.50	131.00	141.00	149.20

2.2.2 不孕(育)症夫妻二元应对潜在剖面分析 采用不孕(育)症夫妻治疗前DCI总分作为外显指标,依次选取1~5个潜在剖面对不孕(育)症夫妻的二元应对水平进行分析,详见表2。当潜在剖面为1~4个时,AIC、BIC、aBIC随着剖面个数的增加而降低;

剖面达到4个时,熵值最大,为0.815 1;此时,LMRT和BLRT均达到显著水平(均 $P<0.05$)。提示包含4个剖面的模型能充分描述不孕(育)症夫妻治疗前二元应对的类别信息,可靠性好。

表2 不孕(育)症夫妻二元应对水平潜在剖面模型拟合指数

Tab 2 Fitting indicators of latent profile models of infertility couples' dyadic coping

Number of profiles	AIC	BIC	aBIC	Entropy	P value		Profile probability
					LMRT	BLRT	
1	4 476.72	4 490.92	4 478.24	1	—	—	—
2	4 429.10	5 553.95	4 431.75	0.571 2	0.000	0.010	0.420/0.580
3	4 429.78	4 465.28	4 433.57	0.488 3	0.000	0.158	0.534/0.228/0.238
4	4 413.71	4 459.85	4 418.64	0.815 1	0.000	0.010	0.595/0.331/0.047/0.027
5	4 419.51	4 476.29	4 425.57	0.605 7	0.000	0.020	0.368/0.323/0.053/0.036/0.219

2.3 不孕(育)症夫妻二元应对潜在剖面命名

如图1所示,从潜在剖面分析结果显示,入组的257对不孕(育)症夫妻的4个剖面:第一类夫妻153对,占总人数的59.5%;该类夫妻二人均处于二元应对正常偏高的水平,男、女DCI平均分分别为(137.01±9.50)分和(136.27±13.81)分,拟命名为“共同积极组”。第二类夫妻85对,占总人数的33.1%;该类夫妻二元应对均处于低水平临界,男、女DCI平均分分别为(109.14±9.42)分和(114.09±14.16)分,拟命名为“共同消极组”。第三类夫妻12对,占总人数的4.7%;女性DCI平均分为(148.92±20.68)分,处于正常偏高水平;男性DCI平均分更高,为(170.75±4.77)分;拟命名为“男方积极组”。第四类夫妻7对,占总人数的2.7%;该类别中,女性处于正常偏高水平而男性处于低应对水平,男、女DCI平均分分别为(96.00±10.66)分和(150.29±10.80)分,故命名为“男方消极组”。

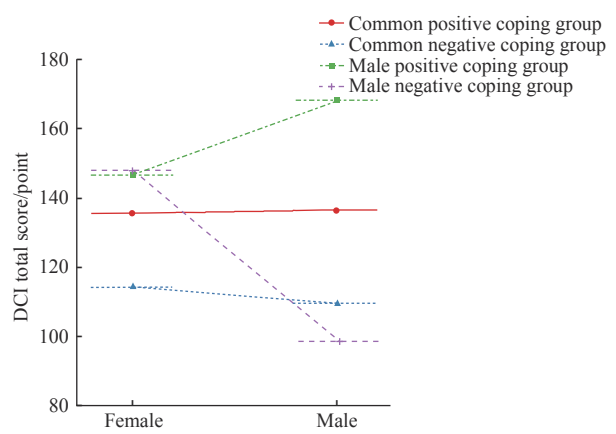


图1 潜在剖面分析4类不孕(育)症夫妻的DCI得分
Fig 1 DCI scores of four clusters of infertility couples in latent profile analysis

2.4 不同二元应对剖面不孕(育)症夫妻的一般资料比较

不同二元应对剖面不孕(育)症夫妻一般资料的比较详见表3。其中男性年龄($F=3.888, P=0.010$)、

女性年龄 ($F=2.722$, $P=0.045$) 及是否再婚 ($\chi^2=8.707$, $P=0.033$) 差异具有统计学意义。共同消极组女性年龄、男性年龄均显著大于共同积极组, 差异有统计学意义 (均 $P<0.01$)。

表3 不同二元应对剖面不孕(育)症夫妻一般资料分析(257对)

Tab 3 General information analysis in different dyadic coping clusters of infertility couples (257 couples)

Item	Cluster				χ^2/F value	P value
	Common positive coping group (153 couples)	Common negative coping group (85 couples)	Male positive coping group (12 couples)	Male negative coping group (7 couples)		
Female age/year	29.78±3.13	30.82±2.94 ^①	29.42±2.97	31.29±1.89	2.722	0.045
Male age/year	31.20±3.45	32.91±4.07 ^②	31.58±5.47	32.57±2.30	3.888	0.010
Marriage time/year	3.79±2.16	3.93±2.24	2.75±1.54	2.36±1.11	2.072	0.104
Infertility time/year	2.92±1.96	3.09±1.92	1.92±1.31	1.57±0.79	2.516	0.059
Female education level/n(%)					11.544	0.073
Below university degree	33 (21.57)	22 (25.88)	0 (0)	1 (14.28)		
University degree	102 (66.67)	55 (64.71)	11 (91.67)	3 (42.86)		
Above university degree	18 (11.76)	8 (9.41)	1 (8.33)	3 (42.86)		
Male education level/n(%)					7.374	0.288
Below university degree	37 (24.18)	21 (24.71)	2 (16.67)	1 (14.29)		
University degree	97 (63.40)	59 (69.41)	10 (83.33)	4 (57.14)		
Above university degree	19 (12.42)	5 (5.88)	0 (0)	2 (28.57)		
Female income/n(%)					8.855	0.182
<5 000 yuan/month	50 (32.68)	31 (36.47)	1 (8.33)	2 (28.57)		
5 000–10 000 yuan/month	66 (43.14)	36 (42.35)	6 (50.00)	1 (14.29)		
>10 000 yuan/month	37 (24.18)	18 (21.18)	5 (41.67)	4 (57.14)		
Male income/n(%)					5.962	0.427
<5 000 yuan/month	16 (10.46)	12 (14.12)	0 (0)	0 (0)		
5 000–10 000 yuan/month	73 (47.71)	34 (40.00)	7 (58.33)	2 (28.57)		
>10 000 yuan/month	64 (41.83)	39 (45.88)	5 (41.67)	5 (71.43)		
Female with jobs/n(%)	130 (84.97)	75 (88.24)	11 (91.67)	6 (85.71)	0.796	0.850
Male with jobs/n(%)	149 (97.39)	84 (98.82)	11 (91.67)	7 (100.00)	2.614	0.455
Remarriage/couple(%)	1 (0.65)	3 (3.53)	1 (8.33)	1 (14.29)	8.707	0.033
Cause of infertility/n(%)					6.935	0.327
Male	72 (47.06)	36 (42.35)	6 (50.00)	4 (57.14)		
Female	66 (43.14)	39 (45.88)	3 (25.00)	1 (14.29)		
Both spouses	15 (9.80)	10 (11.76)	3 (25.00)	2 (28.57)		
Treatment/n(%)					3.922	0.687
IVF	84 (54.90)	49 (57.65)	8 (66.67)	2 (28.57)		
ICSI	45 (29.41)	26 (30.59)	2 (16.67)	3 (42.86)		
PGT	24 (15.69)	10 (11.76)	2 (16.67)	2 (28.57)		

Note: Compared with common positive coping group. ^① $P=0.011$, ^② $P=0.000$. Remarriage refers to the remarriage of either or both spouses.

2.5 不同二元应对剖面不孕(育)症夫妻FPI和FertiQoL量表得分的差异分析

257对不孕(育)症夫妻中, 女性FPI平均得分为(126.02±25.10)分, FertiQoL量表平均得分为(72.24±12.81)分; 男性FPI平均得分为(136.61±27.47)分, FertiQoL量表平均得分为(73.50±13.59)分。不同二元应对剖面夫妻的FPI及FertiQoL量表得分差异具有统计学意义(均 $P=0.000$), 详见表4。共

同消极组不孕(育)症夫妻FPI得分及FertiQoL量表得分与共同积极组相比差异均有统计学意义(均 $P<0.01$); 男性积极组不孕(育)症夫妻FPI得分及FertiQoL量表得分与共同消极组相比差异均有统计学意义(均 $P<0.01$), FertiQoL量表得分与共同积极组相比差异也具有统计学意义(均 $P<0.05$); 男性消极组男性FPI得分及FertiQoL量表得分与男性积极组相比差异具有统计学意义(均 $P<0.05$)。

表4 不同二元应对剖面不孕(育)症夫妻FPI及FertiQoL量表得分分析(257对)

Tab 4 Analysis of FPI and FertiQoL scores in different dyadic coping clusters of infertility couples (257 couples)

Scale	Cluster				<i>F</i> value	<i>P</i> value
	Common positive coping group (153 couples)	Common negative coping group (85 couples)	Male positive coping group (12 couples)	Male negative coping group (7 couples)		
FPI score/point						
Female	120.67±23.55	137.93±23.19 ^①	111.00±20.81 ^②	124.14±36.31	11.378	0.000
Male	129.77±23.60	151.06±27.83 ^①	116.08±32.97 ^②	145.86±12.76 ^③	15.842	0.000
FertiQoL score/point						
Female	74.13±12.46	67.37±12.58 ^①	82.55±6.71 ^{②④}	72.47±11.44	8.491	0.000
Male	76.58±12.37	66.59±12.63 ^①	89.32±6.66 ^{①②}	63.10±11.92 ^{⑤⑥}	20.568	0.000

Note: Compared with common positive coping group, ^①*P*=0.000, ^④*P*=0.023, ^⑤*P*=0.005; compared with common negative coping group, ^②*P*=0.000; compared with male positive coping group, ^③*P*=0.014, ^⑥*P*=0.000.

2.6 不孕(育)症夫妻二元应对剖面相关因素的多元Logistic回归分析

不同不孕(育)症夫妻二元应对剖面中差异具有统计学意义的变量包括夫妻双方年龄、生育压力、生育生活质量及是否为再婚。将这些变量纳入多元Logistic回归方程,以不同不孕(育)症夫妻二元应对剖面作为分类变量,以共同积极组作为参照组,建立

多元Logistic回归方程,结果详见表5。与共同积极组相比,女性FPI得分高(*OR*=1.020, 95%*CI* 1.004~1.036, *P*=0.015)、男性年龄大(*OR*=1.122, 95%*CI* 1.004~1.254, *P*=0.036)、男性FPI得分高(*OR*=1.019, 95%*CI* 1.003~1.035, *P*=0.018)、男性FertiQoL量表得分低(*OR*=0.966, 95%*CI* 0.937~0.996, *P*=0.029)进入共同消极组的风险高。

表5 不孕(育)症夫妻二元应对剖面相关因素的多元Logistic回归分析

Tab 5 Multinomial Logistic regression analysis of factors related to the binary coping profiles of infertile couples

Profile	Variable	β	SE	P value	OR(95%CI)
Common negative coping group	Constant	-7.064	3.545	0.007	
	Female age	0.049	0.070	0.469	1.050 (0.916-1.204)
	Female FertiQoL score	-0.003	0.015	0.854	0.997 (0.968-1.026)
	Female FPI score	0.020	0.008	0.015	1.020 (1.004-1.036)
	Male age	0.115	0.057	0.036	1.122 (1.004-1.254)
	Male FertiQoL score	-0.035	0.016	0.029	0.966 (0.937-0.996)
	Male FPI score	0.019	0.008	0.018	1.019 (1.003-1.035)
	Not remarried	-1.148	1.365	0.400	0.317 (0.022-4.603)
Male positive coping group	Constant	-9.544	7.317	0.192	
	Female age	-0.124	0.153	0.420	0.884 (0.654-1.193)
	Female FertiQoL score	0.023	0.039	0.550	1.023 (0.949-1.103)
	Female FPI score	-0.005	0.016	0.766	0.995 (0.963-1.028)
	Male age	0.040	0.122	0.741	1.041 (0.819-1.323)
	Male FertiQoL score	0.115	0.048	0.016	1.122 (1.021-1.232)
	Male FPI score	0.000	0.016	0.994	1.000 (0.970-1.031)
	Not remarried	-1.534	1.664	0.357	0.215 (0.008-5.627)
Male negative coping group	Constant	2.420	8.576	0.778	
	Female age	0.151	0.216	0.484	1.163 (0.761-1.777)
	Female FertiQoL score	0.020	0.039	0.612	1.019 (0.945-1.101)
	Female FPI score	-0.009	0.022	0.693	0.998 (0.949-1.035)
	Male age	0.015	0.168	0.931	1.042 (0.730-1.410)
	Male FertiQoL score	-0.104	0.044	0.017	0.901 (0.827-0.981)
	Male FPI score	-0.002	0.020	0.906	0.998 (0.959-1.037)
	Not remarried	-3.514	1.749	0.044	0.030 (0.001-0.917)

Note: Compared with common positive coping group. McFadden *R*²=0.312.



3 讨论

3.1 不孕(育)症夫妻二元应对水平存在4个潜在剖面

本研究结果显示,本中心不孕(育)症夫妻ART治疗前的二元应对水平呈现4个潜在剖面,分别为共同积极组、共同消极组、男方积极组及男方消极组,各剖面人群分别占59.5%、33.1%、4.7%及2.7%。男方消极组仅占2.7%,在LPA分析中如某类人数比例过低说明该类的典型性不足^[26];但该剖面男性不育的比例较高,此类患者临床上多需采用供精治疗方案,考虑到我国接受供精治疗的患者比例普遍较低^[27-28],远低于欧美国家^[29],故仍保留该剖面。

本研究采用潜在剖面分析得到的不孕(育)症夫妻二元应对类别与以往研究相比有所不同。二元应对系统整合模型仅提出积极的共同二元应对和消极的共同二元应对^[9]。亦有研究^[30]从文化构建意义分析入手,将不孕(育)症夫妻应对方式分为积极、消极、有限、安慰4种类型。在本剖面分析中,既有夫妻共同消极及共同积极应对类型,又有夫妻应对水平存在差异的男性积极组和男性消极组。既往研究^[31]发现,压力水平是导致二元应对中配偶间差异的因素之一,压力水平越高,应对策略性别差异越大。但在本研究中,共同消极组男女双方FPI得分最高,二元应对却均处于低应对水平,性别间差异较小;推测当压力大于一定水平后,性别间的应对水平差异缩小。

3.2 不孕(育)症夫妻不同二元应对剖面的异质性

两两比较结果发现,不同二元应对剖面不孕(育)症夫妻在男女双方年龄、是否再婚、感知生育相关压力及生育生活质量等方面的差异具有统计学意义。

年龄是ART治疗过程中不孕(育)症夫妻压力源之一^[11],也是影响男女双方生育能力的生理因素^[14-15]。为控制年龄的影响,本研究在纳入研究对象时即对年龄加以限制,但结果发现共同消极组年龄仍高于共同积极组,且差异具有统计学意义,说明年龄可能会对二元应对产生影响。因此,需要积极开展科普教育,促进不孕(育)症患者正确认知,消减他们的压力。

与共同积极组相比,共同消极组不孕(育)症夫妻呈现年龄及生育相关压力更高、二元应对水平及生

育生活质量更低的状态。这与已有的研究结果一致。研究发现不孕(育)症夫妻的二元应对水平与其感知的生育相关压力有关^[32],与患者焦虑、抑郁水平存在负相关^[20]。此外,ANDREI等^[33]对接受ART治疗夫妻的研究发现,回避式应对策略得分与生育生活质量得分呈负相关。同时,生育压力、生育生活质量、不孕可互为压力源且交互影响^[34];FertiQol量表得分每增加1分,妊娠率和活产率分别提高2.4%和2.6%^[35]。因此,对于不孕(育)症夫妻,应着力改善夫妻压力感知,提升二元应对水平,继而改善生育生活质量。

3.3 不孕(育)症夫妻共同消极应对相关因素中的性别差异

多元Logistic回归分析发现,与共同积极组相比,男性生育压力高、年龄大、感知的生育生活质量低均是夫妻共同消极应对的危险因素,而女性相关因素中仅生育压力高是危险因素。以往相关研究中女性是关注的焦点,因为与男性相比,女性有更多的负面经历,其身份认同、自尊和身体健康水平都较低;女性有更高程度的抑郁、压力、焦虑、耻辱和羞耻感,同时认为自己在应对不孕(育)症方面不如伴侣自信^[35]。但是本研究中,共同消极组呈现不同的结果,男性的生育压力高于女性,二元应对水平及感知的生育生活质量均低于女性。主客互依模型是二元应对中探索夫妻交互影响的理论模型,多个研究^[36-37]显示,不孕(育)症夫妻二元应对中各自主体效应明显,主客体效应具有性别差异,男性在二元应对中发挥更强的客体效应。因此,在不同剖面中,不孕(育)症夫妻二元应对的交互影响需要做进一步探究。

本研究对本中心的不孕(育)症夫妻二元应对水平进行潜在剖面分析,并探索不同二元应对剖面的异质性。研究结果明确了不孕(育)症治疗中需重点干预的夫妻类型及干预方向,为制定个性化护理干预措施提供了科学依据。受研究时间及场所限制,研究结果尚具有一定的局限性,有待于多中心研究进行补充;同时,不孕(育)症夫妻二元应对对潜在剖面对其治疗结局的影响亦有待确认。

利益冲突声明/Conflict of Interests

所有作者声明不存在利益冲突。

All authors disclose no relevant conflict of interests.

伦理批准和知情同意/Ethics Approval and Patient Consent

本研究已通过上海交通大学医学院附属仁济医院伦理委员会的审核批准(文件号: KY2023-086-B)。所有过程均遵照《赫尔辛基宣言》的条例进行。受试对象已经签署知情同意书。

This study was reviewed and approved by Ethics Committee of Renji Hospital, Shanghai Jiao Tong University School of Medicine (Approval Letter No. KY2023-086-B). All processes were conducted in accordance with the guidelines of *Declaration of Helsinki*. Consent letters have been signed by the research participants.

作者贡献/Authors' Contributions

奚慧琴、章雅青、徐于睿参与研究方案设计; 奚慧琴、田梅梅、

谢雷、徐于睿、徐颖、黄欣参与资料收集及分析; 奚慧琴、田梅梅参与论文写作及修改; 章雅青负责论文审核。所有作者均阅读并同意最终稿件的提交。

This study was designed by XI Huiqin, ZHANG Yaqing and XU Yurui. XI Huiqin, TIAN Meimei, XIE Lei, XU Yurui, XU Ying and HUANG Xin participated in data collection and analysis. The manuscript was drafted and revised by XI Huiqin and TIAN Meimei. ZHANG Yaqing was responsible for article review. All the authors have read the last version of paper and consented for submission.

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