

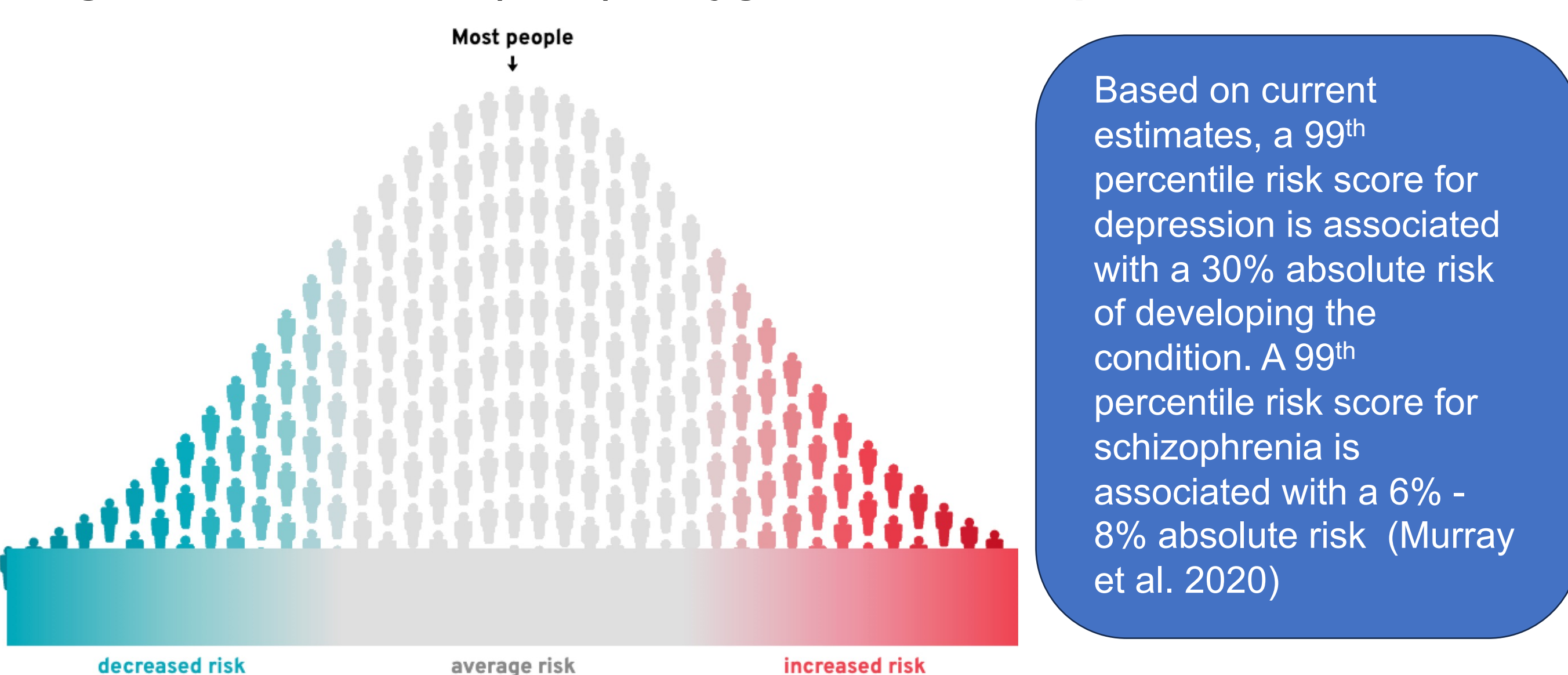
# Psychiatric Polygenic Risk Scores in Reproductive Decision-Making: Perspectives from Adults with Psychiatric Conditions

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## BACKGROUND

- ❖ Psychiatric polygenic risk scores (PRS) can provide genetic risk estimates for psychiatric conditions. Within the context of in vitro fertilization (IVF), they can be used for preimplantation genetic screening to select against embryos with increased risk for psychiatric conditions
- ❖ Consensus about whether to use psychiatric PRS and how to do so responsibly is still in flux and little is known about stakeholders' perspectives (Lázaro-Muñoz et al. 2021; Turley et al. 2021).
- ❖ This study examined adult patient views on psychiatric PRS for reproductive decision-making purposes. Participants were asked a series of questions about the perceived utility and potential impact of psychiatric PRS in reproductive decision-making scenarios.

Figure 1. Petronio, L. (2021). *Polygenic Scores Explained*.



## METHOD

- ❖ In-depth, semi-structured interviews were conducted with adults with psychiatric conditions (n=29). Interviews lasted an average of 60 minutes.
- ❖ Interview transcripts underwent thematic content analysis and major themes identified in preliminary analyses are discussed.

## RESULTS

Table 1. Participant Demographic Information

	Preliminary Sample (n = 29)
Gender	Female 65.5% Male 34.5%
Race	White or European American 72.4% Black or African American 13.8% Asian or East Asian 6.9% More Than One Race 3.4% Race Not Reported 3.4%
Ethnicity	Non-Latinx 69% Latinx 31%
Do you have any children?	No 62.1% Yes 37.9%
[If No] Do you think you will have children?	Yes 58.6% Not Answered 37.9% Unsure 3.5%

**“Some doctors believe individuals knowing their genetic risk for a psychiatric condition may influence their reproductive decision-making. Do you think knowing you had a high PRS would influence your decision to have children?”**

- ❖ 15/29 adult patients responded negatively, mentioning that learning to cope with struggle is part of growing up and their experiences with psychiatric conditions have prepared them to manage their child's potential future symptoms. 8/29 answered affirmatively, while 5/29 said that they weren't sure of their opinion or changed their answer. 1 adult patient did not provide a response.

**“No. Not me personally, because I still know I'm very capable. And even though I have mental health conditions, I'm more than capable. And I'm still living a very great life. So, for me personally... it wouldn't affect my reproductive decisions” (AP 23).**

**“Do you think knowing one of your children had a high PRS might influence your decision about having other children?”**

**“I'm not sure if it would make me not want to have more children because the way that you roll the dice, you're not going to get the same roll every time” (AP 28).**

**“I think the only thing that would really make me say have second thoughts would be in the scenario where I already had a first kid with some conditions that were difficult to deal with. But I think on its face... I don't think I would be bothered by that” (AP 26).**

- ❖ 19/29 adult patients responded negatively, giving reasons like one child's risk may not be that similar to another's and they will have gained practice managing symptoms. 8/29 adult patients responded positively, with some mentioning that if they had one child with high care needs (as opposed to a high risk score), they might consider not having more children. 1 adult patient said they were not sure of their opinion. 1 adult patient did not provide a response.

**“It is possible to do genetic tests on embryos created through in vitro fertilization, or IVF. Soon, it may be possible to test these embryos to learn each embryo's genetic risk of developing a psychiatric condition. Potential parents could use this information to choose which embryo to implant into the mother when using IVF. What do you think about using this information to select embryos for implantation?”**

- ❖ 17/29 adult patients said that using PRS during IVF is permissible, mentioning that parents have a right to information and that it's permissible to try to minimize a future child's risks. On the other hand, 10/29 adult patients said that it was concerning or not permissible to use PRS during IVF, mentioning concerns about bias and eugenics. 2/29 said that they weren't sure about their opinion.

**“I think it's really useful just to eliminate the risk, or the potential that there could be a ton of risk factors. I know some people, this is getting into a whole 'nother debate, but I know some people use it to design these perfect babies that look a certain way. I'm not for that” (AP 20).**

**“If you were planning on having [more] children and you could use this technology, do you think you would want to know about your embryos risk for a psychiatric condition?”**

**“Yes, Yes. Everything I know now, and with two kids with special needs, I would like to know risk for the child, these special needs. Would it be high-functioning, low-functioning? Would it be the first normal kid? I don't know” (AP 30).**

- ❖ 17/29 adult patients answered affirmatively, with some mentioning that they would want to know information about their future child's care needs, or that it would be nice to select an embryo likely to possess desirable traits. 11/29 adult patients answered negatively, mentioning that the information might change their expectations for or relationship with their future child. 1 adult patient did not provide a response.

**“What do you think you would do with this information?”**

- ❖ Of the 17 adult patients that answered the previous question affirmatively, 1 was not asked this follow-up. 11/16 adult patients said they would use PRS information to select embryos for implantation; 3 said that they would use the information to prepare for parenting/caregiving; other themes included waiting until live birth to generate PRS.

**“Do I only have one embryo?... I mean, if I had multiple to choose from, then I would take the healthiest one all around. And I would care more about psychiatric disorders versus eye color or hair color, any of that. Just because just having a healthy baby would be really important to me and that's it” (AP 25).**

## CONCLUSION

A recent survey found that 90% of child and adolescent psychiatrists thought it would be inappropriate to screen embryos for psychiatric PRS (Pereira et al. 2022). However, most adults with psychiatric conditions in this study expressed interest in generating psychiatric PRS in the IVF context. This incongruence should be considered during the development of any future professional guidelines for PES.



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