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# The Donor Conception Identity Questionnaire: associations with mental health and searching for and finding donor connections

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**Objective:** To understand how the Donor Conception Identity Questionnaire (DCIQ) correlates with mental health and explore differences in the DCIQ between donor conceived people who were actively searching for donor connections to those who were not and those who had found their donor connections to those who had not.

**Design:** Cross-sectional survey.

**Subjects:** A total of 88 donor conceived adults ranging in age from 18 to 70 (mean, 34.27 years; median, 31 years). A total of 39 participants were actively searching for their donor connections, and 49 were not.

**Exposure:** Donor conception identity was measured using a questionnaire and scores were correlated with existing measures of mental health.

**Main Outcome Measure(s):** Participants completed the DCIQ and measures of well-being, satisfaction with life, identity, pride, and stigma.

**Result(s):** Factor analysis of items from the DCIQ identified four domains: concern and preoccupation; internalized stigma; pride and acceptance; and openness and understanding. The identified factors correlated with scales of psychological and social well-being. Active searchers scored higher than non-active searchers on “concern and preoccupation” and “internalized stigma”. Donor conceived individuals who had found their donor connections scored lower on “internalized stigma” and higher on “openness and understanding” compared with those who had not found their donor connections.

**Conclusion(s):** The findings of the present study show that scores on the DCIQ correlate with existing measures of psychological and social well-being. Furthermore, donor conceived individuals searching for their donor connections differ from those not actively searching on key domains of the DCIQ. Implications for future avenues of study and support for donor conceived people are discussed. (Fertil Steril® 2025;123:322–32. ©2024 by American Society for Reproductive Medicine.)

**El resumen está disponible en Español al final del artículo.**

**Key Words:** Donor connections, donor conception, sperm donation, identity, DCIQ

There is variation in how donor conceived individuals feel about their conception and the importance they place on finding their donor and others conceived using the same donor who has different parent/s.

Some donor conceived individuals feel angry, upset, or confused about their conception (1–3) although others feel positively or indifferent about this (4, 5). Factors such as the age of disclosure have been found to

be associated with more positive feelings about donor conception (2, 6, 7) and closer family relationships (8, 9), with those told early in childhood feeling more positively and having closer family relationships than those told later in childhood or as adults.

Many donor conceived individuals actively search for, or are found by, their donor connections (10), although estimating the level of interest in donor linking is difficult as it is dependent on donor conceived people being aware of the method of their conception and participating in research on this topic. Estimates from the Sperm Bank of

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California suggest that a third of eligible families requested their donor's identity (11) and in Sweden, approximately 7% of eligible adults had requested information about their donor by 2020 (12). Donor conceived individuals' reasons for searching for their donor include wanting to learn more about the donor (e.g., their appearance, interests, reasons for donation, and medical information), to satisfy feelings of curiosity, and to answer questions about their own identity (1, 2, 13–19). Potential associations between donor conceived individuals' interest in finding their donor connections and within-family factors (e.g., age of disclosure and number/gender of parents) have been highlighted (10). In a recent study of donor conceived individuals with open identity at age 18 donors, those who learned of their conception later in life were significantly more interested in information about their heritage and medical background, and in establishing contact with the donor's family, than were those who had experienced earlier disclosure (12). Other factors, such as the influence of psychological well-being on interest in the donor and same donor peers, are less well understood. The two studies to have looked at this (12, 18) found no associations between these variables. Very little is also known about associations between different factors and experiences of identifying the donor and/or same donor peers.

Within the psychological literature, donor conceived people with anonymous or open identity at age 18 donors are sometimes likened to adopted individuals who may also know little about their families of origin. Although important for all individuals, identity development becomes more complex when differences from family members are present (20). For adopted children, unlike children who are genetically related to their parents, not knowing about their birth family can lead to them questioning who their birth family is, how they may be similar or different to them, and how birth family members fit into their world (21). Adopted individuals have been shown to vary in the extent to which they reflect on their adoptive status, from those who show limited exploration through to preoccupation, where being adopted takes up significant psychological and emotional energy (22, 23). It is thought that the salience of adoption to one's identity may be associated with factors such as initiating a search for birth family (21, 23).

The importance of donor conception to one's identity and how this relates to different aspects of donor conceived individuals' experiences, such as those relating to their emotional, psychological, and social well-being, and those specific to donor conception, such as their level of interest in donor linking, is not well understood. Outside of donor conception, identity resolution has been found to be linked with well-being including satisfaction with life (24), positive well-being (25), and anxiety (26). Although identity exploration is most salient during adolescence, it continues to be open to further changes throughout adult life (27). For donor conceived individuals, identity may be altogether more complex. For example, the literature has shown that for some donor conceived individuals, donors are part of a family story about how wanted the donor conceived child was and how grateful to the donor the family is (28, 29). For other donor conceived individuals, their donor conception is either not shared with them or may be disclosed as a secret that should not be shared beyond the imme-

diated family (30–32). These different experiences are in some ways like the experiences of individuals with minoritized identities, such as LGBTQ+ identities, or the members of minoritized families, e.g., LGBTQ+ families, for whom both positive identity aspects (e.g., pride in the LGBTQ+ identity) and minority stressors (e.g., LGBTQ+ identity-related stigma) have been found to relate to mental health outcomes (33). In a recent study comparing the mental health outcomes of donor conceived and non-donor conceived young adults, donor conceived young adults who reported higher levels of stigma relating to disclosing their donor conception status to others were more likely to score lower on measures of well-being than those who reported lower levels of stigma (C. Jones et al., unpublished data).

How identity influences and is influenced by contact with the donor and/or same donor peers is underresearched. Yet the importance of donor conception and of identifying donor connections to identity is often referred to in the literature. In the study by Harrigan et al. (34), donor conceived individuals described that not having knowledge about the donor (a result of the legal framework of donor anonymity) meant they had incomplete self-knowledge, with participants describing themselves as “half a person” or that “part of us is missing.” Relatedly, several, primarily qualitative, research studies have shown that finding donor connections can lead to a greater sense of self, and a sense of belonging (14, 15, 35, 36). However, researchers have also identified the range of outcomes that can result from making donor connections (e.g., from the very positive to the very negative (16, 37)).

In a study by van den Akker et al. (38), identity was measured among donor conceived adults using the Aspects of Identity Questionnaire (AIQ) (39), which distinguishes between personal, social, and collective components of identity through items such as my personal values and moral standards (personal identity), my popularity with other people (social identity), and my race or ethnic background (collective identity). The items are scored to produce three different “identity orientations”: personal identity orientation, social identity orientation, and collective identity orientation. Van den Akker et al. (38) found no differences in participants' identity orientations based on whether they had found or were still searching for, donor connections through the UK's voluntary Donor Conceived Register (then UK Donor Link). This is perhaps contrary to what might have been expected given the literature discussed that suggests that finding donor connections leads to a sense of belonging and that, among individuals who are adopted, there may be an association between how salient adoption is to identity and initiating a search for birth family (21, 23).

Only one study to date has used a more specific measure of donor conception identity. The Donor Conception Identity Questionnaire (DCIQ), developed by the present study's lead author, and used in the research on which this article is based, was first used by Slutsky et al. (40). The DCIQ was developed and adapted from previous studies of donor conception (2, 16) as well as studies examining adoption identity (20, 41–43). Research by Slutsky et al. (40) explored associations between the way adolescents had integrated knowledge of donor conception into their subjective sense of identity and

parent-child relationship quality. Using the DCIQ alongside the Friends and Family Interview (44), a measure designed to assess the security of attachment in middle childhood and adolescence, Slutsky et al. (40) found that adolescents who were securely attached to their parents were more interested in exploring their donor conception.

The present study had two aims. The first aim was to validate the DCIQ by understanding how scores on the DCIQ correlated with existing scales of mental health, stigma, pride, and identity. The second aim was to examine if donor conception identity, as measured by the DCIQ, differed based on search status, i.e., between donor conceived individuals who were actively searching and those who were not actively searching for their donor connections, and by their donor linking status, i.e., between those who had found their donor connections and those who had not.

## MATERIALS AND METHODS

Data for this study are drawn from a larger survey-based investigation examining the experiences and well-being of donor conceived adults in the United Kingdom. In line with the approach of this investigation, the present study reflects a conceptual shift toward studying donor conceived individuals' experiences in a balanced perspective, i.e., recognizing the potential challenges and strengths that may be part of this experience, particularly as they relate to identity (e.g., both positive identity aspects, and minority stressors) (Jones et al., forthcoming). This approach is underpinned by recent psychological theorizations of identity that are based on what we know from the empirical literature about the members of minoritized groups and families (33), and the existing literature on donor conception that has shown variability in experiences (see Introduction and Zadeh et al., 2016 (28) and 2017 (29)).

The survey was designed in consultation with the UK's largest community networks for donor conception families (Donor Conception Network [DCN]) and donor conceived people (Donor Conceived Register Registrants' Panel [DCRRP], now Donor Conceived UK). It was piloted by five donor conceived people before launch, and was live, via the survey software tool Qualtrics, between January and August 2022.

The survey was advertised by the DCN and the DCRRP via mailing lists and social media. It was also circulated by the research team and others on social media and university mailing lists. Snowball sampling was also employed. The inclusion criteria for the study were: born through gamete donation (egg, sperm, or embryo donation); aged >18; and living in the United Kingdom. Ethical approval was awarded by the University College London Institute of Education's Research Ethics Committee. The study was also approved by the DCN Research Ethics Committee. All participants provided written consent to take part in the survey.

### Participant characteristics

Eighty-eight donor conceived adults took part in the study, ranging in age from 18 to 70 years (mean, 34.27 years; median, 31 years). Demographic information for the sample can be found in Table 1. Most of the samples were conceived

using donor sperm and identified as female. All were born after anonymous donations. Overall, 39 participants described themselves as actively searching for their donor connections, and 49 did not. Most participants found out about the study through the DCRRP (n = 45, 51%) or DCN (n = 22, 25%).

## Measures

The scores from the DCIQ were compared with existing questionnaires on mental health, satisfaction with life, identity, pride, and stigma. This validation process, often referred to as construct validity, is important in evaluating psychological questionnaires to ensure that the questionnaire measures the concepts that it is designed to evaluate.

**Mental Health Continuum short form.** The Mental Health Continuum Short Form (45) is a 14-item measure of the emotional, social, and psychological components of well-being that asks respondents to indicate how often in the last month they experienced particular feelings associated with positive mental health on a 6-point scale ranging from 0 (never) to 5 (every day). An example item includes "during the past month, how often do you feel that you had experiences that challenged you to grow and become a better person?" The scale has been evaluated in different countries including the United Kingdom, the Netherlands, Hong Kong, India, Japan, Malaysia, and Vietnam, with reported internal consistency ranging from 0.74 to 0.94 (46, 47) Total scores can range from 6 to 70, with higher scores indicating flourishing mental health and well-being. Cronbach's alpha of the present study was 0.910.

**Satisfaction with life scale.** The Satisfaction With Life (SWL) scale (48) is a brief questionnaire designed to evaluate overall life satisfaction. Five statements are rated on a 7-point scale ranging from strongly disagree to strongly agree. An example item is "So far I have gotten the important things I want in life." A total score ranging from 5 to 35 is calculated, with higher scores suggesting an individual feels greater global satisfaction with their life circumstances. Scores ranging from 5 to 9 indicate extreme dissatisfaction, a score of 20 indicates neutral satisfaction, and scores of 31–35 indicate extreme satisfaction. The scale has been reported to show high internal consistency and reliability (24). Cronbach's alpha of the present study was 0.890.

**Identity confusion subscale from the modified Erikson Psychosocial stage inventory MEPSI.** The Modified Erikson Psychosocial Stage Inventory (MEPSI) (49) explores the degree to which individuals identify with psychosocial attributes as an adult. It is informed by Erikson's theory of eight stages of identity development. The full scale has previously been used with adolescents, young adults, adults, and elderly adults (50). The identity confusion subscale comprises 10 items that examine the extent to which an individual has resolved the developmental stage of identity exploration and crisis. A sample item is "I change my opinion of myself a lot." After the relevant items have been reversed scored, the mean is calculated with a range of 1–5, whereby higher scores represent more positive attributes, i.e., a more resolved

TABLE 1

## Sample characteristics.

Participant characteristic	X	SD
Age	34.27	10.95
	N	%
Gender		
Female	65	73.9
Male	19	21.6
Nonbinary	4	4.5
Transgender	1	1.1
Sexual orientation		
Straight or heterosexual	65	73.9
Gay or lesbian	8	9.1
Bisexual	9	10.2
Other	5	5.7
Missing	1	1.1
Relationship status	36	40.9
Married/civil partnership	29	33.0
In a relationship	23	26.1
Single	36	40.9
Ethnicity		
White English/Welsh	83	94.3
White other	4	4.5
Mixed/multiple ethnic	1	1.1
Religion		
No religion	67	76.1
Christian	18	20.5
Jewish	2	2.3
Buddhist	1	1.1
Education		
General Certificate of Secondary Education (GCSE)	6	6.8
A-levels	12	13.6
Undergraduate degree	30	34.1
Postgraduate degree	30	34.1
Diploma	8	9.1
Other	2	2.3
Employment status		
Employed	61	69.3
Unemployed	3	3.4
Studying	7	8.0
Employed and studying	6	6.8
Other	11	12.5
Family type		
Heterosexual couple	74	84.1
Same-sex female couple	7	8.0
Single mother	5	5.7
Other	2	2.3
Type of donation		
Sperm donation	79	89.8
Egg donation	7	8.0
Embryo donation	2	2.3
Do you remember the age learned about donor conception?		
Too young, always known	21	23.9
Yes	67	76.1
Not sure	0	0
If yes, age learned about donor conception		
7–9	3	4.5
10–14	9	13.4
15–19	8	11.9
20–24	13	19.4
25–29	13	19.4
30–34	6	9.0
35–39	3	4.5
40–44	6	9.0
45–49	4	6.0

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TABLE 1

## Continued.

Participant characteristic	X	SD
50+	1	1.5
Missing	1	1.5
Searching status		
Actively searching	39	44.3
Not actively searching	49	55.7
Found donor connections		
Yes	56	63.6
No	27	30.7

Jadva. Donor Conception Identity Questionnaire. Fertil Steril 2025.

understanding of identity, and lower scores suggest greater identity confusion. The reliability of subscale scores has been reported to be good to excellent (50). Cronbach's alpha of the present study was 0.891.

**Pride subscale of the Gender Minority Stress and Resilience Measure.** The pride subscale (51) (8 items) of the Gender Minority Stress and Resilience Measure scale was adapted for use with donor conceived individuals. The subscale examines the extent to which an individual feels proud of their identity. A sample item is "I am proud to be a person who is donor conceived." The items are scored from 0 (strongly disagree) to 4 (strongly agree), with the relevant items being reverse scored. The items are summed and then averaged to create a mean score ranging from 0 to 4, with higher scores representing higher levels of community connectedness and pride respectively, e.g., greater resilience factors. Each of the nine scales has been reported to have good criteria and convergent validity (52). Cronbach's alpha for the pride subscale of the present study was 0.803.

**Disclosure concerns subscale of the human immunodeficiency virus Stigma Scale.** The disclosure concerns subscale (53) (10 items) of the human immunodeficiency virus (HIV) Stigma Scale was adapted for use with donor conceived individuals. The original scale comprises 40 items with four subscales that assess how people living with HIV experience stigma. The disclosure concerns subscale assesses a person's worries or concerns about telling others about their HIV status. The adapted subscale explored the extent to which individuals experience stigma relating to telling and talking to others about their donor conception. A sample item is "In many areas of my life, no one knows I am donor conceived." The items are scored from 1 (strongly disagree) to 4 (strongly agree) with relevant items being reverse scored. The item scores are then totaled, with high scores indicating greater stigma regarding disclosure. The reported internal consistency for the original scale has been found to range from acceptable to excellent (Cronbach's alpha  $\geq$  0.70) (54). Cronbach's alpha of the present study was 0.897.

**Donor Conception Identity Questionnaire.** The DCIQ was developed and adapted from previous studies of donor conception (2, 16) as well as studies examining adoption identity (20, 41–43). The original questionnaire was developed by the first author specifically for a study of donor conceived

adolescents to examine the relationship between parent-child attachment quality and donor conception identity (40). As there was no existing measure of donor conception identity, the researchers created a questionnaire by drawing from research on adoption and donor conception. The items were checked for face validity by researchers with expertise in the field of donor conception, adoption, and psychometrics. As the questionnaire was not standardized, and no scoring system or norms were available, the investigators conducted a factor analysis on the questionnaire items which resulted in a two-factor solution based on 16 of the 25 items of the questionnaire. Given the sample size of the original study was small ( $N = 19$ ) and not all items were used in the final analysis, the present study repeated the factor analysis using all items of the questionnaire. The questionnaire comprises 25 items, with each item rated on a 5-point scale ranging from 1 "Strongly disagree" to 5 "Strongly agree." In the present study, a principal component analysis with varimax rotation was conducted on the 25 items of the DCIQ. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, Kaiser-Meyer-Olkin = 0.851. Bartlett's test of sphericity  $\chi^2 = 1313.56$ ,  $df = 253$ ,  $P \leq .001$ , indicated that correlations between items were sufficiently large for principal component analysis. An initial analysis was run and a 6-factor solution with eigenvalues  $> 1$  was found. Analysis of the scree plot showed that a 4-factor solution was more appropriate. The factor analysis was rerun with eigenvalues  $> 1.1$ . Two items had low communalities scores and were removed. The final model accounted for 66.02% of the variance. The items and factor loadings can be seen in Table 2. The 4 factors were described as follows: Concern and preoccupation (8 items, Cronbach's alpha = 0.874) included items such as "I have thought a great deal about donor conception" and "After a conversation about donor conception I tend to feel upset"; Internalized stigma (6 items, Cronbach's alpha = 0.877) including items such as "I try to avoid the topic of donor conception because it raises a lot of questions" and "I feel embarrassed if others know I am donor conceived"; Pride and acceptance (6 items, Cronbach's alpha = 0.872) including items such as "Being donor conceived makes me feel special" and "Being donor conceived is just part of who I am"; and openness and understanding (4 items, Cronbach's alpha = 0.572) including items such as "I am happy to tell anyone about my donor conception" and "I understand myself better because I have thought about who I am in relation to my parents and my donor." To score the questionnaire, negatively loading items were reversed and all the items for each subscale were summed to produce a score for each. The concern and preoccupation subscale ranges from 8 to 40 with higher scores indicating greater concern and preoccupation with being donor conceived; the Internalized stigma subscale ranges from 5 to 25 with higher scores reflecting more severe internalized stigma about being donor conceived; the pride and acceptance subscale ranges from 6 to 30 with higher scores reflecting more positive feelings and pride in being donor conceived; and the Openness and understanding subscale ranges from 4 to 20 with higher scores indicating greater exploration of donor conception and greater willingness to discuss donor conception with others (Appendix A for the questionnaire and scoring key, available online).

**Search status and linking status.** Information on participants' search status was obtained by the following closed response question. "We know that some people actively search for the donor and other people conceived using the same donor (often and here referred to as donor siblings), others are open to being contacted but are not actively searching, and others do not wish to make connections. Which best describes your experience at the moment?" Possible responses were actively searching for donor connections; open to making connections but not actively searching; and not searching for donor connections. The latter two responses were recoded as "not actively searching" for the purposes of the present study.

Information on participants' linking status was obtained by the following closed response (Yes/No) question: "Have you identified any donor connections, either recently or in the past?"

### Data analysis plan

Pearson's  $r$  correlations were conducted to examine the association between the different domains of donor conception identity and measures of positive and negative mental health, stigma, pride, and identity. To examine differences in donor conception identity between groups based on searching for donor connections (actively searching vs. open to contact) and finding donor connections (yes or no), multivariate analyses of variance were conducted followed by univariate analysis of variance (ANOVA). Before analysis, Cronbach's alpha was calculated for all scales and the four domains of the DCIQ. Cronbach's alpha measures the internal consistency of items on a scale and is used to evaluate the reliability of a psychometric scale. Cronbach's alpha ranges from 0 to 1, with acceptable values ranging from 0.70 to 0.95 (55).

## RESULTS

### Donor conception identity and psychological and social well-being

**Concern and preoccupation.** The Concern and preoccupation subscale of the DCIQ was found to correlate positively with the disclosure subscale of the HIV Stigma Scale,  $r(86) = 0.280$ ,  $P = .008$  and to correlate negatively with the pride subscale of the Gender Minority Stress and Resilience Measure,  $r(86) = -0.398$ ,  $P < .001$ , such that participants who were more concerned and preoccupied about their donor conception also showed greater stigma regarding disclosure and lower levels of pride in being donor conceived.

**Internalized stigma.** The internalized stigma subscale was positively correlated with the disclosure concerns subscale of the HIV Stigma Scale  $r(86) = 0.858$ ,  $P < .001$  and negatively correlated with the Mental Health Continuum  $r(85) = -0.378$ ,  $P < .001$ , SWL scale  $r(86) = -0.263$ ,  $P = .013$ , pride subscale of the Gender Minority Stress and Resilience Measure  $r(86) = -0.716$ ,  $P < .001$  and identity confusion subscale of the MEPSI  $r(86) = -0.250$ ,  $P = .019$ , showing that participants who had more internalized stigma about donor conception showed greater stigma regarding disclosure, lower levels of positive functioning, were less satisfied

TABLE 2

Donor Conception Identity Questionnaire items with factor loadings for items comprising subscales.

Item on DCIQ	Concern and preoccupation	Internalized stigma	Pride and acceptance	Openness and understanding
Being donor conceived makes me feel special	—	—	0.874	—
I have thought a great deal about donor conception	0.755	—	—	—
After a conversation about donor conception, I tend to feel upset	0.527	—	—	—
It is important for me to be in contact with other donor conceived individuals	0.629	—	—	—
I feel like donor conception is something that happened in the past and I am fine where I am	-0.721	—	—	—
I am happy to discuss donor conception with my friends	—	-0.769	—	—
I do not feel bad about being donor conceived	—	—	0.655	—
Being donor conceived is just part of who I am	—	—	0.747	—
I am proud of being donor conceived	—	—	0.793	—
I try to avoid the topic of donor conception because it raises a lot of questions	—	0.824	—	—
Being donor conceived does not really matter much to me	-0.801	—	—	—
I feel angry that I am donor conceived	—	—	-0.589	—
I think a lot about the characteristics I might share with my donor	0.686	—	—	—
Donor conception does not enter into my life or my decisions at all	-0.654	—	—	—
Knowing the identity of my donor is important to me	0.754	—	—	—
I understand myself better because I have thought about who I am in relation to my parent(s) and donor	—	—	—	0.724
I am happy to discuss donor conception with my parent(s)	—	—	—	0.541
I feel embarrassed if others know I am donor conceived	—	0.879	—	—
I like to keep my donor conception a secret	—	0.907	—	—
I am happy to tell anyone about my donor conception	—	—	—	0.360
I feel ashamed of being donor conceived	—	—	-0.362	—
I worry about being bullied or teased about being donor conceived	—	0.724	—	—
I am still trying to figure out how donor conception relates to who I am	—	—	—	-0.371

Jadva. Donor Conception Identity Questionnaire. Fertil Steril 2025.

TABLE 3

Mean (SD) and univariate analysis of variance by search status and found donor connections.

DCIQ subscale	X	SD	X	SD	F	P value
	Actively searching		Not actively searching			
Concern and preoccupation	32.18	5.46	28.57	6.95	7.543	.007
Internalized stigma	14.10	5.47	12.32	5.16	4.355	.040
Pride and acceptance	20.95	6.19	21.34	5.61	0.297	.587
Openness and understanding	12.54	3.03	13.30	3.59	2.558	.114
	Found donor connections		Not found donor connections			
Concern and preoccupation	31.14	6.41	28.44	6.94	1.570	.214
Internalized stigma	12.25	4.87	15.04	5.88	7.071	.009
Pride and acceptance	20.70	6.09	22.11	5.31	0.648	.423
Openness and understanding	13.48	3.09	11.81	3.62	6.083	.016

Note: Comparisons between active searchers and non-active searchers only with those not interested in contact removed (n = 5).

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with their life circumstances, felt lower levels of pride in being donor conceived, and greater identity confusion.

**Pride and acceptance.** The pride and acceptance subscale was positively correlated with the Mental Health Continuum  $r(85) = 0.276$ ,  $P = .010$ , SWL scale  $r(86) = 0.329$ ,  $P = .002$  and the pride subscale of the Gender Minority Stress and Resilience Measure  $r(86) = 0.800$ ,  $P < .001$ . It was negatively correlated with the disclosure concerns subscale of the HIV Stigma Scale  $r(86) = -0.396$ ,  $P < .001$ . Thus, participants who scored higher on the pride and acceptance subscale showed better mental health and well-being, were more satisfied with their life circumstances, and showed greater pride in being donor conceived.

**Openness and understanding.** The Openness and understanding subscale was positively correlated with the Mental Health Continuum  $r(85) = 0.304$ ,  $P = .004$ , SWL scale  $r(86) = 0.316$ ,  $P = .003$ , the pride subscale of the Gender Minority Stress and Resilience Measure  $r(86) = 0.584$ ,  $P < .001$  and the identity confusion subscale of the MEPSI  $r(86) = 0.244$ ,  $P = .022$ . It was negatively correlated with the disclosure concerns subscale of the HIV Stigma Scale  $r(86) = -0.614$ ,  $P < .001$ . Thus, participants who showed greater exploration of donor conception and a greater willingness to discuss donor conception with others also showed better mental health and well-being, were more satisfied with their life circumstances, showed more pride in being donor conceived, had a more resolved understanding of identity, and had lower levels of stigma regarding disclosure.

### Donor conception identity and searching for and finding donor connections

The multivariate analyses of variance found a main effect of "searching for" ( $F(4,76) = 3.414$ ,  $P \leq .001$ ; Wilks'  $\Lambda = 0.848$ ) and "finding" ( $F(4,76) = 5.306$ ,  $P = .013$ ; Wilks'  $\Lambda = 0.782$ ) donor connections. However, the interaction between the two variables was not significant ( $F(4,76) = 0.508$ ,  $P = .730$ ; Wilks'  $\Lambda = 0.974$ ) suggesting that they were independently related to the subscale scores of the DCIQ. As summarized in Table 3, univariate ANOVA's showed a significant

difference between search status and concern and preoccupation,  $F(1, 79) = 7.543$ ,  $P = .007$  and internalized stigma,  $F(1, 79) = 4.355$ ,  $P = .040$ , with active searchers scoring higher than non-active searchers on both domains. Univariate ANOVA's found significant differences between finding status and internalized stigma  $F(1, 79) = 7.071$ ,  $P = .009$  and openness and understanding  $F(1, 79) = 6.083$ ,  $P = .016$ , with donor conceived individuals who had found donor connections scoring lower on internalized stigma and higher on openness and understanding compared with those who had not found their donor connections.

### DISCUSSION

The findings of the present study show that donor conceived individuals differ on key domains that tap into aspects of their donor conception identity. Scores on the subscales of the DCIQ correlate with existing measures of psychological and social well-being, providing evidence for the validity of the questionnaire. Furthermore, the DCIQ can differentiate between donor conceived individuals in terms of the ways in which they have integrated knowledge of donor conception into their subjective sense of identity, and this is related to the intensity of their search for donor connections and the outcomes of that search. First, findings show that all four subscales of the DCIQ relate to different dimensions of well-being, including overall emotional, social, and psychological well-being, and more specific dimensions, including for example pride and stigma. Each subscale showed good reliability as measured by Cronbach's alpha, and overall, the subscales showed that more positive donor conception identity was related to better mental health and well-being, higher SWL, and greater pride in being donor conceived, whereas more negative donor conception identity was related to lower levels of mental health and well-being, greater stigma regarding disclosure, and less pride in being donor conceived. Our findings therefore not only evidence the varying psychological and social implications of being donor conceived for different individuals but also attest to the value of the DCIQ as a useful tool for researchers who are interested in how donor conception identity relates to psychological and social

well-being. It is also likely that the DCIQ could be used by health professionals and counselors whose work can be guided by knowledge of the impact of donor conception on individual identity and provide them with a better understanding of the complexity of donor conception identity. Completion of the DCIQ within a therapeutic setting could inform the practitioner about the stage of identity development their client is at and guide more tailored interventions; further research is now needed to establish the application of the DCIQ in a practical context as well as to explore how donor conception identity changes over time, and the factors that may affect this.

One of the strengths of the present study is that its findings demonstrate the diversity of psychological and social experiences of being donor conceived among donor conceived people in the United Kingdom. The psychological well-being of donor conceived people has otherwise been systematically studied in two studies of donor conceived young adults to date: the US National Longitudinal Lesbian Family Study of donor conceived individuals raised in two mother families (56), and the UK Longitudinal Study of assisted reproduction families (8). Both studies found no differences between the psychological well-being of donor conceived young adults and adults born without assisted conception. The present study's findings extend what is known from the existing literature by validating both the negative and positive aspects of the experiences of donor conceived individuals. For example, findings show the psychological toll that being donor conceived takes on some individuals, along with the importance of factors such as pride, acceptance, openness, and understanding for other individuals, for whom being donor conceived is experienced differently. Further conceptual work that applies existing psychological theories and concepts such as minority stress (57, 58) and flourishing (59) to donor conceived populations is needed to establish whether being donor conceived is, for some individuals, associated with positive components that not only moderate the effects of challenges to well-being but also are in themselves positively associated with it. Some of this conceptual work, which foregrounds strengths-based approaches, is beginning to emerge in LGBTQ+ families and their children, some of whom are donor conceived (59).

Beyond findings relating to the varied implications of being donor conceived for identity and well-being, this study offers an important insight into the relationship between searching for and finding donor connections and how individuals feel about being donor conceived. Participants who were actively searching for donor connections showed higher levels of concern and preoccupation and internalized stigma about being donor conceived than non-active searchers. Moreover, those who had found donor connections showed lower levels of internalized stigma and greater levels of openness and understanding than those who had not found connections, suggesting that finding donor connections may facilitate the successful integration of donor conception into one's identity and a willingness to discuss being donor conceived with others. Such findings in turn suggest that the DCIQ may be a valuable resource for practitioners in the context of supporting individuals who are requesting their

donor's identity (as is the case in the United Kingdom as of October 2023, and see also Allan, 2017 (60), and Calhaz-Jorge, 2020 (61) for legislation in other jurisdictions). However, it is important to recognize that from the study's cross-sectional findings, causal relationships between variables cannot be established.

Further limitations of this study include the fact that the sample on whom the research is based was mostly conceived using sperm donation and was mostly female. Studies of donor conceived children and young adults have found few differences in the psychological adjustment of children born after egg donation, sperm donation, or surrogacy and has found that they can feel positively, negatively, or indifferently about their method of conception (2, 4, 5). However whether or not the scale would be similarly useful for those conceived through egg donation or surrogacy cannot be known from the present findings. Moreover, all the individuals taking part in the study were aged 18 and over and the vast majority had been conceived to heterosexual parents. However, the DCIQ has been successfully used in previous research with a sample of adolescents raised in single mother and same-sex female couple families (2), suggesting the potential value of this questionnaire across different cohorts of different ages and family types. Further work to validate the scale within different contexts and with different populations is now required. In the meantime, the findings of this study will be of importance and value to stakeholders who are presently reflecting on how best to support donor conceived people, particularly in the context of searching for and finding donor connections.

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### CRedit Authorship Contribution Statement

**Vasanti Jadva:** Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Catherine Jones:** Writing – review & editing, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Sophie Zadeh:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

### Declaration of Interests

V.J. has nothing to disclose. C.J. has nothing to disclose. S.Z. has nothing to disclose.

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### **Cuestionario de Identidad de Concepción por donante: asociaciones con la salud mental y la búsqueda y el encuentro de conexiones con donantes**

**Objetivo:** comprender cómo el Cuestionario de Identidad de Concepción por Donante (DCIQ) se correlaciona con la salud mental y explorar las diferencias en el DCIQ entre las personas concebidas por donación que estaban buscando activamente conexiones con donantes y las que no, así como aquellas que habían encontrado sus conexiones con donantes y las que no.

**Diseño:** una encuesta transversal.

**Lugar:** encuesta realizada en línea en el Reino Unido.

**Paciente(s):** Un total de 88 adultos concebidos por donación, con edades comprendidas entre los 18 y los 70 años (media, 34.27 años; mediana, 31 años). Un total de 39 pacientes estaban activamente buscando sus conexiones con donantes y 49, no.

**Intervención(es):** La identidad de la concepción por donante se midió mediante un cuestionario, y las puntuaciones se correlacionaron con medidas existentes de salud mental.

**Medida(s) de resultado principal:** los pacientes completaron el DCIQ y medidas de bienestar, satisfacción con la vida, identidad, orgullo y estigma.

**Resultados:** el análisis del DCIQ identificó cuatro dominios: preocupación, estigma internalizado, orgullo y aceptación, y apertura y comprensión. Estos factores se correlacionaron con escalas de bienestar psicológico y social. Los buscadores activos obtuvieron puntuaciones más altas en el dominio de “preocupación” y “estigma internalizado” en comparación con los no buscadores activos. Las personas concebidas por donación que habían encontrado sus conexiones con donantes obtuvieron puntuaciones más bajas en “estigma internalizado” y más altas en “apertura y comprensión” en comparación con aquellas que no habían encontrado sus conexiones con donantes.

**Conclusión(es):** los hallazgos del estudio demuestran que las puntuaciones en el DCIQ se correlacionan con medidas existentes de bienestar psicológico y social. Los individuos concebidos tras donación que buscan las conexiones de su donante presentan valores distintos en dominios clave del DCIQ a los individuos que no buscan activamente a su donante. Se discuten implicaciones para el futuro y apoyo a los individuos concebidos tras donación de gametos.