"You are not alone": A big data and qualitative analysis of men's unintended fatherhood

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A B S T R A C T

Background: Becoming a father is a profound change in a man's life that is not always planned or wanted. Little is known about the subjective experiences of men who become fathers unintentionally or reluctantly. The aim of this research was to explore how men who did not intend to have children discuss their feelings about becoming a father in an online, anonymous environment. We sought insights into emotional responses, appraisals of family functioning, and relationships with infants.
Method: Data were collected from two Reddit forums for new and expectant fathers, r/Daddit and r/Predaddit. Approximately 2600 posts and 21,000 comments were extracted from the period between January 2019 and March 2020. We employed a two-stage methodology, blending big data techniques and qualitative analyses. Stage One included extraction and data preparation for topic modelling Stage Two was an adapted approach to thematic qualitative analysis.
Results: Topic modelling revealed 49 topics of which 6 were relevant thematically to unintended fatherhood. Men's communication in these were then classified within three domains: 1) *Men's Concerns* included their mental health, problems bonding with baby, their relationships with family and partner, and finances; 2) *Men's Affective Experiences* existed on a spectrum of complex emotions including regret, resignation, ambivalence, acceptance, and excitement; and 3) the *Purpose of Communication* included asking for and offering advice, normalisation, and perspective.
Conclusions: Online forums like Reddit provide a unique opportunity for fathers who did not intend to have children to normalize their experience by expressing concerns and emotions in a pseudonymous environment. This study highlights the supportive environment that online discussions offer to fathers, and particularly unexpected fathers who may face stigma or barriers in other settings.

1. Introduction

An estimated 26%–40% of pregnancies in western cultures are unintended (Johnston et al., 2017; Rowe et al., 2016; Taft et al., 2018), meaning the conception is unplanned or mistimed or the birth is unwanted. When an infant is born unwanted or not wanted yet, there may be greater risk to the wellbeing of parents and children (Bronte-Tinkew et al., 2009; Stykes, 2018). However, most research in this area has focused on mothers (Bahk et al., 2015; Currao & Mezuk, 2019; Herd et al., 2016). Little is known about men's responses to an unwanted but retained pregnancy and their experiences that follow the birth of their child. Even among those who plan to become fathers, most men report feeling unprepared for parenthood (Kings et al., 2017), due partly to inadequate perinatal information and support for fathers (Kowlessar et al., 2015; Moraes & Granato, 2016). If services are to improve the quality of paternal support, it will be important to cater for the varying experiences associated with unintended or unwanted fatherhood.

The transition to fatherhood involves formation of an identity as a parent and navigation of competing challenges to the new father role (Baldwin et al., 2018; Fletcher et al., 2020). Strength of commitment to the father identity varies, and is influenced by contextual factors such as spousal evaluation (Pasley et al., 2002), beliefs related to fathering (Pleck & Masciadrelli, 1997), and pregnancy intention (Lindberg et al., 2017). A 'procreative consciousness', developed prior to conception, has also been implicated in men's paternal identity formation (Marsiglio, 1991). Here, clarity of pre-existing beliefs, attitudes and values about parenting roles and responsibilities are implicated in how well the new father identity is integrated into a reconstructed sense of self (Marsiglio et al., 2013). Fathers of unintended or unplanned pregnancies enter the role with less opportunity to prepare for the identity shift and to adjust psychologically to role expectations, responsibilities, and relationship changes, however, few studies have explored this transition in depth. Given that unplanned, mistimed and unexpected pregnancies are linked to increased risk for mental health problems for fathers (Bronte-Tinkew et al., 2009; Nishimura & Ohashi, 2010; Wang et al., 2021), which may then impact on partners and children (Glasser & Lerner-Geva, 2019; Ramchandani et al., 2008; Wong et al., 2016), there is a clear need for further research on this at-risk group.

Evidence points to new fatherhood as a period of heightened emotional vulnerability and increased risk of psychological distress (Boyce et al., 2007; Giallo et al., 2014). Despite this, there remain minimal options for detection or treatment of paternal perinatal mental health problems (Berg & Ahmed, 2016; Musser et al., 2013). Fathers are not as yet routinely screened for depression or anxiety, with options for how to offer support complicated by male symptom profiles of mental health problems that go underrecognized in mainstream diagnostic criteria (Berg & Ahmed, 2016; Freitas et al., 2016; Seidler et al., 2016). Further, adherence to restrictive masculine norms that promote stoicism and minimize or shun vulnerability, may act as a barrier to some men seeking support (Rice et al., 2017; Seidler et al., 2016). Unintended fatherhood adds an additional layer of risk at this time with studies showing links to greater risk of depression (Gao et al., 2009; Top et al., 2016) and generally poor emotional well-being (Martinviita-Hietala et al., 2020; Su, 2012), yet these associations are vastly under-studied in comparison to research on outcomes of maternal child-bearing intentions (Abajobir et al., 2016).

In general, research on the transition to fatherhood remains limited (Wong et al., 2016). Scarce reporting of fathers' experiences has been attributed to difficulties reaching and engaging fathers in health research. In part, these difficulties relate to a range of factors including a perception that fathers are disinterested in contributing to research, stereotypes of men being incompetent or absent from caregiving, some fathers' reluctance to seek help for themselves (Bateson et al., 2017), and fathers not having been invited to participate in fatherhood research (Davison et al., 2017).

Such difficulties engaging fathers in research highlight a need for innovative methods to collect data on this population. One opportunity is the natural formation of father groups on social media that offer support, providing ecologically valid interactions for researchers to observe. In particular, online forums and threads specifically for fathers can offer a positive and nurturing space for men to discuss challenges of the new role with others who are also making this life transition (Ammari et al., 2018; Scheibling, 2020; Teague & Shatte, 2021). Past research found fathers engaging across multiple online platforms including Dad Blogs (Scheibling & Marsiglio, 2021), Facebook (McLeod, 2020) and Reddit (Teague & Shatte, 2021). In these environments, fathers were found to be discussing parenting generally, requesting advice, communicating joy and distress, and sharing challenges including physical and mental health concerns (Eriksson & Salzmann-Erikson, 2013; McLeod, 2020; Teague & Shatte, 2018). Their exchanges have been characterized by empathy, self-disclosure and humor (Fletcher & StGeorge, 2011). However, these studies did not distinguish between experiences of planned or unplanned fatherhood.

Pseudonymous online parenting spaces, such as Reddit, allow parents to discuss, without self-identification, sensitive parenting topics (Ammari et al., 2018). For men, self-disclosure and information seeking online can be shaped by social norms, informing topics discussed including those considered taboo (Das & Hodkinson, 2019b; Matley, 2020). Therefore, online parenting spaces that provide pseudonyms, rather than real identities, may provide a space for men reluctantly entering fatherhood to candidly reveal their experiences.

Retrieving data from online forums is now commonplace with increasing access to web-scraping packages. Additionally, machine learning approaches provide an opportunity to automate the process of summarizing relevant data within a large quantity of textual information (Asmussen & Møller, 2019). Once this automated approach is used to understand the large dataset, the resulting data can then be more manageably synthesized using in depth qualitative methods. To undertake this study, we draw on the strengths of two specific analytic approaches. Similar to a previously reported augmented approach (Guetterman et al., 2018), we use a Natural Language Processing technique called Latent Dirichlet Allocation (LDA) to automate the process of understanding the broad range of latent topics that are being discussed within the large corpus of r/Daddit and r/Predaddit text data. From this broad range of topics, we retained the topics that were focused on unintended pregnancies, and then used in-depth, qualitative exploratory techniques (Braun & Clarke, 2006) to synthesize the remaining data (i.e., 'posts'). Using this dual big data and thematic qualitative analytic approach, our aim was to gain breadth and depth of understanding of emotional responses and subjective experiences of fatherhood among men who did not want, or intend, to be parents.

2. Methods

2.1. Data sampling

Data were collected from the social media platform Reddit. Reddit describes itself as 'the front page of the internet' and is one of the most visited internet sites in the world, especially popular in the United States, followed by the UK and Canada, with men twice as likely as women to use Reddit (Statista, 2021). Reddit users can create 'subreddits', which are forums based on common interests, to share and discuss related content with other users. Two of the most popular subreddits for fathers have been chosen for this study: r/Daddit, 'a subreddit for Dads,' and r/Predaddit, described as 'for men about to become fathers' (Reddit, 2020). Teague and Shatte (2018) demonstrated the feasibility of using r/Daddit and r/Predaddit to explore the transition to fatherhood, finding rich data on father's experiences, including support and experience-based advice on a broad and diverse range of parenting topics using a similar topic modelling method. Notably, the r/Daddit and r/Predaddit forums contain content that spans a wide range of topics, thus only posts relevant to unintended pregnancies were retained for analysis (see later section for selection of these data).

Although r/Daddit and r/Predaddit are designed and intended to be for expectant and new fathers, it is possible that anyone can comment within these subreddits. Moreover, the authors acknowledge that gender is not necessarily a binary construct but for the purposes of this study, we adopted the assumption that if a person identifies as a father, they go by he/his/him pronouns. It is important to note that no posts or comments mentioned identifying as transgender or gay and therefore there is a presumption of *cis*-heteronormativity across the sample.

2.2. Analytic methods

We conducted analyses across two stages. Stage One consists of steps taken to prepare data and conduct automated latent topics estimation using Latent Dirichlet Allocation. In Stage Two we undertook four steps of qualitative analysis, based on the thematic approach of Braun and Clarke (2006).

2.2.1. Stage One – using LDA to estimate latent topics and reduce data quantity

1. Search terms

In order to identify relevant posts within the r/Daddit and r/Predaddit forums, we created a list of search terms (see Supplementary Table 1 for full list) by first listing synonyms of the primary construct of interest – 'lack of intention' (e.g., *unplanned, unintended, unwanted, surprise*). We then conducted a preliminary exploration of the relevant subreddits to identify additional terms used by men to express their lack of intention (e.g., *surprise, oops, accident, mistake*). The combined set of terms were agreed upon by the research team and served as the primary search terms used to identify the posts of interest that would be extracted for analysis.

2. Data Extraction

Data (original posts and their related comments) were extracted, using Python (3.8), from the Reddit Pushshift Dataset, which is a publicly available, large-scale social media dataset that includes hundreds of millions of submissions, dating back to 2005. The Pushshift Application Programming Interface (API) was chosen due to: a) its capability of overcoming data limits imposed by the Reddit API and, b) its capability in retrieving historical Reddit data that it has archived, prior to the impact of Covid-19 and the restrictions that changed the lives of parents around the world (Baumgartner et al., 2020). Thus, data from both r/Daddit and r/Predaddit from January 2019–March 2020 were retrieved, totaling approximately 2600 'original posts' and 21,000 comments. Posts and comments were only retrieved if they contained one of the pre-determined sets of search terms (see Supplementary Table 1).

3. Data Preparation

In line with prior Reddit-based data cleaning and topic modelling approaches (Westrupp et al., 2020), data were prepared for analysis using 'tm' v0.7-6 package (Meyer et al., 2008) in R software, by converting all text to lower case, removing white space, numbers, punctuation, and stop words" (e.g., "the", "on", "at", "is"). After this stage, ~28, 000 unique words were identified in the corpus. Next, low frequency words that occurred in no more than 5 separate posts were removed, given that these would have little influence on the LDA modelling. This resulted in ~10,000 words that were then reviewed by the lead author and a research assistant for stemming (i.e., reducing words to their base stem, e.g., "father", "fatherhood", "fathers" were all converted to "father"), and lemmatization (i.e., words equivalent in meaning were grouped together and coded as being the same word "dad", "father", "daddy"). In the stemming process, single letters (e.g., a, b, c) were also removed. We made the decision to retain recognisable acronyms such as "wtf" (what the fuck), "lol" (laugh out loud), "omg" (oh my god), as well as acronyms specific to the research topic such as "ftd" (first time dad) and "sahd" (stay at home dad).

4. Data Analysis - LDA Topic Modelling

Latent Dirichlet Allocation (LDA) is an unsupervised machine learning approach that identifies latent topics based on word-correlations within a corpus (Blei et al., 2003). By estimating *topic-word probabilities* (i.e., the probability that any given word is generated by a specific topic; β matrix) and *document-topic probabilities* (i.e., the probability that a given topic is generated by a document within the corpus; γ matrix), the researcher can deduce meaning by examining the words and documents (i.e., Reddit posts) that are most probabilistically related to the topic. For this study, LDA was conducted using the 'topicmodels' v0.2-8 package (Grün & Hornik, 2011) and hyperparameters were set to delta = 0.01 and alpha = 50/k where k equals the number of topic models being estimated (Kosinski et al., 2016). To identify the best fitting model, we used a 5-fold cross-validation approach and sequentially estimated a 2 through to 50 topic model. The perplexity value for each model was used to select the best fitting topic model (Bao & Datta, 2014; Blei et al., 2003), where models with lower perplexity suggest better fit.

5. Selecting Data for Qualitative Synthesis

After the best fitting model was identified, we extracted the 10 posts that had the strongest document-topic probabilities for each topic, in line with prior research (Westrupp et al., 2021). These posts therefore represent the textual data that was most strongly related to each latent topic and would be the focus for qualitative synthesis. When inspecting the actual γ values of the posts within each topic, the average γ value for the top 10 posts, across the 6 topics included in the current study was $\gamma = 0.17$; however, an inclusion of an extra 10 posts (i.e., including the top 20 posts) results in little extra benefit as the average gamma remained stable (i.e., $\gamma = 0.15$). This suggests that the top 10 posts comprised a representative sample of the latent topic, with little extra information gained by including more posts.

However, given the automated nature of the LDA modelling approach in identifying topics, topics may not necessarily be directly related to the research aim of interest (but nevertheless form a cohesive latent theme). For example, within the posts examining unexpected pregnancies of potential fathers, topics might form around buying strollers or changing nappies. As such, to be included in the qualitative analysis, we only retained topics if they were relevant to the research aim. Specifically, we deemed a topic to be relevant if a majority (i.e., at least 50%) of the 10 posts with the strongest document-topic probabilities for each topic: 1) appeared to be written by a man, who, 2) had a child or was expecting a child, and 3) who had not intended to have a child (either explicitly stated or exhibiting ambivalence or a sense of regret).

2.2.2. Stage Two - qualitative analysis

Once the relevant topics were identified, we used the 10 posts with the strongest document-topic probabilities for each topic as the basis for qualitative synthesis. Qualitative analysis provided the opportunity to understand the overarching themes within the data that was automatically identified using LDA. We began our analysis by conducting an initial reading of topics. In that reading it was apparent that there was duplication of themes across topics that reflected the nuances in experiences of unintended fatherhood. Therefore, a decision was made to conduct a qualitative synthesis holistically, rather than topic-by-topic. Thematic analysis was chosen for its ability to explore the rich and complex data and identify patterns within that complexity (Braun & Clarke, 2006). Stage Two consisted of the steps that were used for qualitative analysis.

1. Reviewing the data

Using only those topics that were deemed to be relevant, the lead author read the 10 posts with the strongest document-topic probabilities within each of the included topics to validate that meaningful themes could be identified.

2. Defining and naming the themes

Each theme was defined and named separately by two authors, then discussed until consensus on naming was reached (see Supplementary Table 2 for full table of topics).

3. Final analysis and selection of compelling examples

The lead author (IS) engaged in ongoing analysis to refine the specifics of each theme and discussed their conceptualization and inter-relatedness with the senior author (JM) to develop the overall narrative of the data. Exemplar quotes were extracted to reflect meaning and the quality of men's experiences within each of the themes.

2.3. Ethics in social media data collection

The study was granted ethics approval by the Deakin University Faculty of Health, Human Research Ethics Committee (HEAG- H 163_2019). Research based on large data sets from internet communities comes with specific ethical considerations, as highlighted by Eysenbach and Till (2001). First, the current study is a passive analysis of posts, and therefore a relatively unintrusive form of research. Additionally, we considered there to be a very low level of vulnerability and potential for harm for both individuals and the group as a whole. In terms of the level of perceived privacy on Reddit, we note that the subreddits chosen have large followings: r/Daddit had 177,621 users, and r/Predaddit had 41, 053 users, as of October 2020 (Reddit, 2020). Furthermore, the public nature of social media forums such as Reddit, where anyone can read posts and comments without logging in and users typically create pseudonyms or 'throwaway' accounts, is unlike Twitter and Facebook which are more readily linked to the user's actual identity. Nevertheless, we were mindful that some research has highlighted that the use of pseudonyms may be interpreted as users not intending for their posts to be public (Eysenbach & Till, 2001), and therefore, all data were extracted without the inclusion of usernames, and we did not include any posts or comments that included the name of any person, place, business or any other identifiable information.

3. Results

3.1. Stage One- quantitative analysis results

A 49-topic model was found to be the best performing LDA model as it had the lowest average perplexity (across the 5-fold cross validation) of all the models (see Supplementary Fig. 1 for perplexity diagram). As such, this 49-topic model was retained for further analysis.

Based on the inclusion criteria that the majority of posts needed to be relevant to the research questions, 6 of the initial 49 topics were included in the final qualitative analysis. The average number of words for each post we used in the qualitative synthesis was 267.7 words, which we found to be a sufficient length for meaningful analysis.

Of the excluded 43 topics, 3 were advertising products or services, 7 were made up of unrelated posts with no discernible theme and 33 topics were relevant to new fathers but with no evidence of the pregnancy being unintended or regretted. The 33 topics relevant to new fathers included some common parenting experiences such as toilet training, immunization, breastfeeding, meal suggestions and baby sleep challenges. There were also more specific topics such as grief after loss of a child, fertility journeys, daycare concerns, intimacy issues and concerns around child development.

The LDA process allowed the 49 original identified topics to be distilled to a manageable 6 topics in which men had indicated that the pregnancy or their child was unintended, unwanted, or that they regretted having a child. The way men expressed their lack of intention or low desire for a child ranged from subtle (e.g., discussing their methods of birth control) to blatant (e.g., use of words like 'unplanned', 'accident').

3.2. Stage Two - qualitative analysis results

The themes identified within the remaining 6 topics formed a triadic framework such that they encompassed three interrelated domains characterized by what the men on the forums discussed, why they discussed it and how they felt. These are illustrated in Fig. 1. The overall approach in this study was interpretive, therefore, rather than quantifying their frequencies, we focused on sense making about unintended fatherhood from individual posts (Lareau, 2012). Additionally, all spelling and grammar is as it appeared on Reddit and has not been corrected.

Within each of the three domains were a set of themes. Representation of these themes across the six included LDA topics is noted in Table 1.
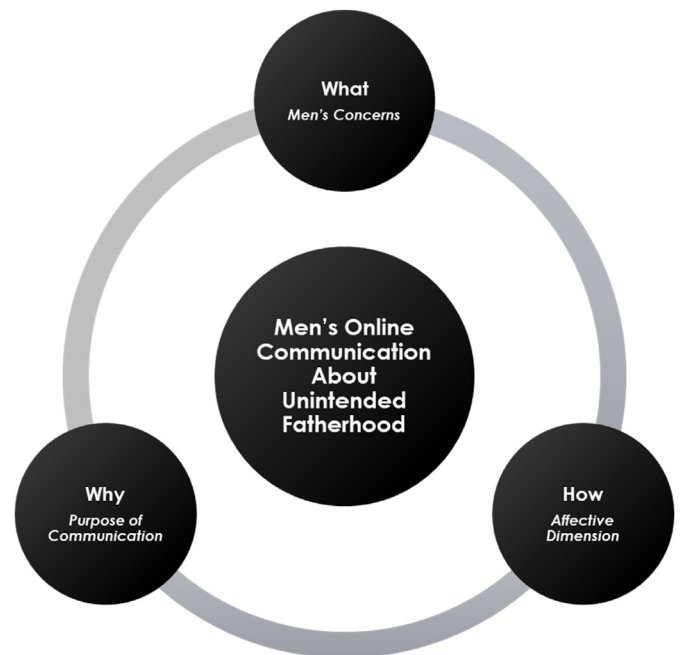

Fig. 1. Triadic framework of men's online communication about unintended fatherhood.

The first domain 'Men's Concerns', revealed four themes reflecting the content of what men most commonly talked about: Mental Health, Bonding with Baby, and strain within Relationships and Finances. The second domain represented an 'Affective Dimension' to the discussions characterized by the themes: Regret, Resignation, Ambivalence, Acceptance and Excitement. The final domain provided insights into the 'Purpose of Communication' between fathers and consisted of the themes: Seeking Advice, Seeking Normalisation, Seeking Validation and Offering Advice, Offering Normalisation and Offering a Reframe or new perspective.

3.3. Domain 1 Men's concerns – what men were talking about

3.3.1. Mental health

The data revealed a range of concerns shared by new fathers with low desire for a child. One of the most common concerns was their mental health, particularly in the context of unexpectedly being a new father.

Table 1
The LDA topics contribution to the three identified domains and their related themes.

Domain Themes	LDA Topic Number					
	12	17	23	36	37	44
Men's Concerns						
Mental Health	✓	✓	✓	✓	✓	
Bonding with Baby	✓		✓		✓	
Relationships	✓					✓
Financial Strain			✓	✓	✓	
Affect						
Excitement				✓		
Acceptance		✓				✓
Ambivalence	✓			✓	✓	
Resignation	✓	✓	✓			
Resentment, hatred, sadness	✓					✓
Purpose of Communication						
Advice	✓		✓	✓	✓	✓
Normalisation	✓	✓	✓		✓	
Support	✓				✓	✓
Reframe	✓	✓				

Note. Topic numbers are the number assigned during the LDA process. Six of 49 topics displayed here are those that were retained for qualitative analysis.

Here, we saw both an explicit discussion of diagnoses and formal professional supports as well as discussions that incorporated mental health in a more informal manner. These posts revealed a level of vulnerability from men who face the possibility of stigma or judgement from others.

Some men offered up their own stories of being diagnosed and the treatment they were engaged with. One new father revealed that he saw a psychiatrist after a suicide attempt. He then went on to recommend seeing a psychiatrist to other Daddit users. The act of posting was itself a form of self-disclosure, as seen in the excerpt below:

"Our daughter is 3 months old now, I'm diagnosed with Paternal Postnatal Depression and I'm attending a therapy for several months now (started when my wife was still pregnant and I already felt what's happening to me). I'm not sure if it's helping (although I don't know how bad it would be without it). I keep on having really bad breakdown episodes. There are days when I just sit and cry thinking how miserable my life has become."

For others, there was no formal diagnosis, but they had a sense that their emotional state was something to be concerned about. Men used terms such as 'depressed' and 'PPD' in a less formal manner with a tone of musing or hypothesizing *"feeling some PPD I think"* and *"I'm just depressed probably."* Other men expressed feelings of sadness and guilt about their own actions or behaviors. One new dad said that he was *"feeling sadness and depressed because I feel l am not doing enough …"*, a common sentiment on Daddit where men wanted to help their partners but didn't seem to know how. There were also dads who had tried to help but found themselves overwhelmed by a crying infant. One dad turned to Daddit after one such incident to express how he felt; *"… filled with regret on how I handled tonight. I know it's my fault. I know I need a therapist. I hate how his screaming makes me feel.*"

3.3.2. *"I felt like the tin man" (bonding)*

New fathers reached out to each other on Daddit, concerned that they were not bonding with their new baby. One man said his child was unplanned and, *"I just don't really feel a connection with him."* Another dad echoed this sentiment with his post, *"I don't feel any bond with her. There was no overwhelming surge of love the moment I saw her. No most powerful, unconditional love that people tell you you're gonna feel and will make it all worth it."*

There were some fathers who described 'wanting' the child at some point but still not feeling any bond with the baby. One man offers a poignant reflection on his sudden change of feelings for his second child *"but the only thoughts I've been having so far for this one is that I don't even want her. This makes no sense, since I've been wanting her since before we found out we were pregnant, but it's like a switch flipped the wrong way the moment she was born."* One commentor responded with the benefit of hindsight and a more experienced father's perspective *"I felt like the tin man without a heart but I wanted to love him so much. I wanted a connection but felt nothing … but it does get better."*

3.3.3. *Relationships with partner and family*

New and expectant dads sought and offered advice about romantic relationships; for some the relationship remained intact, for others the pregnancy created feelings of resentment and some couples even reunited for the sake of the child.

One expectant father lamented his lack of excitement for a mistimed pregnancy. He prefaces this with a clear statement of love for his wife, wanting to articulate that the lack of positive feelings is for the unborn child, but not his partner. *"I love my wife more than anything in the world and I just wish I felt the same about this as her. But this feeling just won't go away."*

In contrast, some men found that an accidental pregnancy put pressure on their romantic relationship. One father reflected his experience from many years ago *"I wanted to have an abortion, since we werent ready, but it wasnt my choice, it was hers, and she didnt want to. I wasnt gonna force*

her, not leave her alone, I couldnt … but the resentment was there for a long time." He goes on to explain that he is still married and he has changed his view. Another father revealed that he was told about the pregnancy after breaking up with a girlfriend *"Our daughter was born and we decided to give the relationship another go with focus on the baby."*

The role of being a father is understood within a broader extended family system with existing expectations. One new dad reached out to other Dadditors. *"Family Doesn't Approve of Pregnant S/O and Vice Versa. Long story short, my girlfriend (22F) and I (25M) with a rocky relationship of 1 year had an unexpected pregnancy, my girlfriend who is 5 months pregnant does not like my mom because of her demeanour and my mom doesn't approve of her because of her mental disorder."*

3.3.4. *Finances*

Some expectant dads expressed concerns that having an unexpected baby might put them under additional financial pressure. Some dads mentioned their income or the many baby items they needed to purchase; one expectant father disclosed that money was his *"biggest concern and worry, in being able to afford and pay for all of this without drowning."* Masculine roles were apparent; *"It feels like more of a "protector" sort of feeling. Like I want to be financially stable for him and the family, and want him to have access to the things he needs".*

One new dad said he was surprised at how great fatherhood was but was finding it difficult to be happy due to comments made by 'child-free' friends.

"For example, a good friend of mine who never wants kids reacted to my having a child with derision and scorn. He said that my life was over, I won't be able to do anything in life until I'm 47 (when my kid will be 18). He said kiss goodbye to $250k."

3.4. *Domain 2: Affective Dimension (how men felt)*

We found that men with low desire for a child expressed their feelings on r/Daddit and r/Predaddit across an affective spectrum. New fathers communicated to each other how they felt about being a father, about the bond (or lack of) with their new baby, and about the transition to fatherhood broadly. The emotional spectrum revealed in men's posts ranged from: regret, hatred, and anger; resignation and ambivalence; and through to acceptance and a sometimes a sense of overwhelming excitement. These emotions often intersected, whereby men felt conflicting emotions simultaneously.

3.4.1. *Regret, anger, hatred, shame, sadness*

Emotions were candidly expressed both by men reaching out to others for advice or support and by those responding to the original posts with normalisation or empathy for the original posters. Some posts were characterized by a sense of desperation and hopelessness. Dads expressed thoughts and feelings with raw vulnerability. One father asked if anyone had 'found happiness' as a dad. He said he 'hated his life' and referred to his future as 'absolutely hopeless.' The excerpt below highlights the bleakness for this father:

"I hate my life so much. It's become this never-ending, soul-crushing grind. I know that the first months are supposed to be difficult but I'm barely holding up."

This intensity of emotion was not an anomaly, with other fathers posting similarly. One comment in response was *'I feel like it is supposed to be "worth it", but for me, it hasn't been worth it.'* This sense of regret was expressed by many men, some attributing that feeling to the 'extreme life change' and some named it more specifically as the 'loss' of their old identity. The discourse of grief, loss, and mourning a previous identity was prevalent across both r/Predaddit and r/Daddit posts.

For some men there was a sense of sadness associated with the regret, they wished they could be happy about the unexpected pregnancy and new addition to the family. This excerpt highlights the complexity of these emotions:

> "My wife is stoked — looking at all the baby shit online and whatnot. However, I am not — and I feel guilty about it. Whenever I try to look at stuff though I just get this weird sinking feeling in my heart. Overall I think the thing I'm feeling most is … sadness?"

3.4.2. Resignation

There was a sense of resignation from some men on the subreddits. This was particularly evident in dads of older children, who offered their perspectives to new dads, acknowledging that the situation was less than ideal but perhaps better than it used to be or better than the expected:

> "We didn't want children either, and some days I want to send her back where she came from. But to be honest, it's not as bad as people say."

Another father acknowledges that the infant stage is the hardest and that things can slowly feel better over time:

> "Our kid is 4 and we are starting to get out of the roughest part of it. She now sleeps through the night and can more-or-less wipe her own ass, and she asks for stuff instead of crying. She has ADHD and is ….difficult behaviour wise, but it is not as shit as it was 2 years ago, or when she was a newborn. I hope I feel better about things as she continues getting older. We are definitely one-and-done though."

3.4.3. Ambivalence "I'm happy … but …"

Some men articulated contradictory feelings simultaneously. They expressed their ambivalence in terms of the positives first, followed by 'but' or 'however' and then the negative as seen in both excerpts below:

> "I am happy to be having a kid. But … Right now though I don't really feel a lot."

> "Both my wife and I would take a bullet for our daughter without hesitation and we love her dearly … But …. I miss my old life."

3.4.4. Acceptance (coming to terms with)

A sense of acceptance for an unexpected child was evident in some posts. Rather than resigning to the situation, men demonstrated attempts to make the best of the situation or to hold this unexpected event lightly and with a sense of humor. One expectant father contemplated the mistimed pregnancy with a sense of lightheartedness *"I've always wanted kids, but I wasn't anticipating it this early … but I guess I don't have a choice anymore haha."*

> "… we broke up and she called me soon after to tell me she was pregnant. We didn't even discuss abortion, she just asked me if I wanted to be in our baby's life and I accepted without thinking twice. I visited sometimes during the pregnancy, bought some stuff to make her feel more comfy, spoke to her belly etc. I was there for the birth …"

3.4.5. Excitement "I'm excited"

Some men turned to r/Predaddit to express their excitement for their surprise pregnancy. Reaching out for advice, one man expressed that the pregnancy was mistimed and he consequently felt *"excited but freaking out big time."* He posted on the forum because he doesn't *"know what to prep or what to expect, it all seems so overwhelming."* Another user defines his pregnancy as '*unplanned … we haven't prepared*". He lists his emotional state currently as "*scared, hopeful, excited, terrified*" and firmly states that "*we are happy. There is no "but". Only concern about what is next."*

3.5. Domain 3: purpose of communication (how and why men communicated online)

There was an acknowledgement by many posters that the purpose, for them, was to seek and receive reassurance and advice from other dads. One particularly pertinent post by a new father who detailed his struggles, venting that he feels "hatred" for and "can't stand" his infant son, how his attempts to settle the baby ended in an emotional outburst, which 'filled [him] with regret' and his wife pointed him in the direction of r/Daddit.

> "That's when she sends me a link to you guys and this sub. I start reading posts about all the dads that are doing great and all the dads that are struggling …. I'm in the pit right now. I'm really struggling. I'm taking whatever help I can get. It's hard. But it's nice to know I'm not alone and that there's other people with advice and stories that I can use and learn from."

3.5.1. Seeking and offering normalisation

3.5.1.1. "Is this normal?".
Fathers seeking normalisation of their own experiences was a prevalent theme of communication. Men with differing backgrounds, stories and experiences wanted to know if others shared their experiences. One expectant father stated that he was "*happy to have a kid*", despite it being unplanned, and that he was involved in practical preparations for a new baby but did not feel an "*outpouring of emotion*". He concluded his post with the question for other r/Predaddit users: "*I guess I just want to make sure that this is a normal feeling to have?*" Another father said he felt "*thrust into the role of fatherhood abruptly*" at the age of 25 and was experiencing feelings of inadequacy, guilt, and sadness. Regarding these feelings, he wanted to know "*is this normal?*"

Fathers were seeking reassurance from others who had experienced something similar, in contrast to advice or resources. Phrases such as "*Has anyone of you been in a similar situation?*" or "*Please tell me it gets easier*" were used to reach out to other dads online.

3.5.1.2. "You are not alone".
Just as normalisation was sought, so too was it freely offered. The extract below illustrates the sense of support created by dads, in this case for dads who were concerned they did not feel love for their baby.

> "If someone reading these posts feels this way, just hang in there, keep at it, and once your kids old enough to act more like a little human child and less like a baby alien you'll start feeling that love. It took me more than 2 years."

One writer responds with a clear statement of inclusion, followed by a clarification of his feelings for his child and then the statement of regret.

> "You are not alone … We could never wish for her to go away now we know her. But if you gave us a sampling of the "parent life" for couple of months before the "so …..pulling the goalie or not?" conversation, I would have gone and had a vasectomy."

Other posts talked about being glad or grateful for these kinds of posts, exemplifying why normalisation is so important for unintended fathers. *"I'm really glad you posted this and opened up to our group. I too felt the same."*

3.5.2. Seeking and offering advice or support

3.5.2.1. "Any advice for me?".
Another key reason men ventured onto r/Daddit and r/Predaddit was to seek advice from more experienced fathers on a range of topics including custody arrangements, preparing for the arrival of an unexpected baby, or even telling others about the unintended pregnancy. One new dad found that his own ability to enjoy fatherhood was being influenced by comparing himself to people online. He then, ironically, asks on Daddit if anyone has advice.

"I personally never thought I would have children but my partner unexpectedly became pregnant last year … I find that it is difficult to truly be happy because I have a habit of comparing myself to other people online, specifically those who don't ever want kids and keep telling us how great it is to be child-free and responsibility-free. Does anyone have advice on this? Maybe I should stop reading Internet comments."

Original posts often began with complex stories such as learning of an unintended pregnancy after the relationship broke down, or parents that don't approve of the relationship, ending with a plea for advice such as: *"Since you guys have all gone through this, any advice for me?"* or *"I am need some guidance. Thank you, A soon to be father."*

Some dads were overtly seeking support from the Daddit community, some, like the example below were pleading with others to help them.

"Not stoked to be a dad, and I hate myself for even thinking it. I feel like I already failed. I don't feel excited to be a dad, and I hate that the thought is even in my head. Help me please."

3.5.2.2. "May I suggest …". Advice was offered for dealing with emotions and responses to an unintended or unwanted child, often through the recounting of personal stories and validated by their own perceived success, as seen in the excerpts below:

"I ended up going to a psychiatrist after a suicide attempt. It did some good, it faced me with my own immaturity. May I Suggest trying it? Everybody is different, but it seriously helped in my case."

"Keep it up, be there for him. Being with them all is just wonderful, when you allow yourself to actually be there."

"if you're still just kind of 'hmm' over a newborn, just give it some time. I do recommend talking to the belly - it might help"

3.6. Offering a reframe/perspective

3.6.1. "It's not as bad as people say"

Fathers offered up an alternative perspective with phrases like *"another way you could look at this is …"* or *"don't listen to the haters"*. Some responses offered normalisation or empathy, followed by a retrospective positive reframe of the situation based on personal experience. The excerpt below captures this response style.

"We also had an accidental pregnancy … We didn't want children either, and some days I want to send her back where she came from. But to be honest, it's not as bad as people say. You just need to be calm and have a good sense of humour. I wouldn't change my life."

Here, a commentor has positioned himself as sharing a common experience *"we also",* then uses humor to deflect from the vulnerability inherent in what he says. He offers a positive 'spin' on a difficult life event and some advice that seems genuine but possibly minimizes the experience of an unplanned child, potentially further alienating men who already feel they are on the periphery. Another reframe is offered below in a similar style, the writer distinguishes between 'convenience' being lost versus 'meaning or joy'.

"He's only 3 months old, but it's clear to me and my wife that our old life is a thing of the past. We are irrevocably tied to our child and his needs. But though this is a loss of convenience, it's not a loss of meaning or joy."

4. Discussion

The aim of this study was to explore how men, who enter parenthood, unintentionally or reluctantly, discuss their experiences and feelings

about becoming a father. We distilled a large corpus of rich online data into 49 topics identified through topic modelling. Six of those topics met our inclusion criteria in that they centered around the experiences of fathers with a lack of intention or low desire for a child. A qualitative thematic analysis of the included topics then revealed three primary domains: *men's concerns, affective expression,* and *purpose of communication.* Concerns focused on men's own mental health, bonding with their baby, problems within relationships, and financial strain. Affective expression was found to extend across an emotional spectrum spanning regret, resignation, ambivalence, acceptance, and excitement. Men's reasons for communicating were to seek and offer normalisation, advice, and the perspective of others.

4.1. Men's concerns

There is a growing awareness of specific concerns fathers have in the transition to parenthood and this study extends on that work by revealing the depth and intensity of fathers' subjective experience when the pregnancy was unintended. Across the perinatal period, it is estimated that 10% of new fathers develop anxiety (Leiferman et al., 2021) and 8% depression (Cameron et al., 2016), with the risk reportedly higher for unintended fathers (Bronte-Tinkew et al., 2009; Su, 2012). In the current study, men expressed concern about *'feeling depressed'* and *'needing therapy'*, while other men disclosed diagnoses and recommended their peers seek *'professional help'*. Although scarce prior research has explored whether men's fertility desires are related to father-infant bond (Sayahi et al., 2017), our finding suggest that men do express concern regarding their lack of perceived bond with baby. Alternatively, what men might be describing is a paternal-infant bond that is developing more slowly over time, facilitated by ongoing interactions with the infant (Goodman, 2005). A key insight from our findings is that men's relationship trajectories with partners vary after conception and, for some, the lack of intention to be a father defined their post conception relationship. Some men wrote of feeling *'resentment'* toward their partner for a pregnancy they did not plan; in contrast, others reported an enhanced feeling of love for and closeness to their partner, and some reunited *'for the sake of the child'*. It is common for there to be a period of relationship quality decline in the perinatal period (Doss et al., 2009), however, a supportive partner may buffer the negative impacts of unintended fatherhood on family functioning (Sayler et al., 2021). Finally, men expressed concerns about the competing demands of fatherhood, feeling pressure to fulfil a provider role and be financially secure in preparation for fatherhood, highlighting the interaction of a traditional masculinity (in the provider tradition) with fatherhood identity (Marsiglio & Pleck, 2005).

4.2. The Affective Dimension

The emotional impact of unintended fatherhood in the current study was not uniform, highlighting the need to cater to heterogeneity when developing perinatal supports for men. Whilst scarce, the prior literature on the emotional experience of unintended fathers points to complex negative emotions such as guilt, shame, denial and regret as common (des Robert et al., 2020). The current study extends on this understanding by additionally bringing to light positive emotional reactions disclosed by some men. Acceptance, excitement, and happiness were expressed by some of the fathers, although emotions were not neatly assigned to positive or negative poles. Simultaneously feeling *'scared, hopeful, excited, terrified'* after an unexpected pregnancy exposed the manifold ways in which such a momentous life change can be experienced. Specifically, without intention to enter fatherhood, there was an opaqueness to these men's futures which meant excitement was often tempered by feelings of being scared and overwhelmed by the unknown changes ahead.

One possibility is that some of the positively framed posts are a demonstration of 'affective coding' where the message posted online is a subtle venture into emotional revelation, that appears less intense and vulnerable than the man feels in reality (Das & Hodkinson, 2020). Recent

literature exploring this idea has reported on fathers 'coding' emotional disclosures or strategies to facilitate emotional disclosures rather than sharing upfront overt revelations. This represents a 'toe in the water' approach to see if it is safe to go in further. Furthermore, some men may use humor for deflection and engage in emotional masking (Das & Hodkinson, 2019a), suggesting conformity to traditional masculine gender norms (Seidler et al., 2016). However, it may be that posts can be taken at face value, and that the positive emotions expressed by some fathers, are indicative of adjustment of the unplanned birth of a child. An important consideration for future research is why others do not adjust and what factors would assist to facilitate adjustment. These would likely have implications for the mental health and wellbeing of the man, his partner, and child.

Some unintended fathers grappled with intense negative emotions such as anger, regret, resentment, shame and a sense of loss. This intensity was exemplified in phrases such as '*soul-crushing grind', 'barely holding up'* and '*weird sinking feeling.'* Whilst short periods of paternal postnatal negative thoughts and feelings of loss are common (Westrupp et al., 2021; Wroe et al., 2019), persistent negative and intense affect may indicate depression and anxiety in the perinatal period (Gjerdingen & Center, 2003; Wroe et al., 2019). Specifically, as expressed in the current study, resentment for becoming a father has been found to be a prominent risk factor for an atypical transition to fatherhood (Wroe et al., 2019). In the online discussions, some men expressed intense anger felt toward the infant, their partner, themselves, or their life. This is concerning given the risk to family physical safety (Norlander & Eckhardt, 2005) and the growing awareness that anger may be a symptom of depression in men, and specifically fathers (Macdonald et al., 2020). Men disclosed intensely personal feelings of being '*filled with regret'*, that their life was '*miserable'* and, that they '*felt nothing,'* indicating that these men wanted to tell someone the depth of their experience and had reached out to tell other men in this online forum. This aligns with the contention made by recent scholars of men's mental health, that the notion that men inherently do not seek help is a myth and that instead, men have a strong desire to talk and seek support (Kealy et al., 2021). It also demonstrates the degree of need with these kinds of comments reflecting despair and detachment that will have an impact, not only on their own mental health but on their partner's and on their infants. Online spaces such as r/Daddit and r/Predaddit might provide the outlet new fathers need to express their negative thoughts and feelings in a pseudonymous environment and elicit informal support and insights from other fathers.

For some men, the act of sharing their thoughts and feelings in a safe space such as r/Daddit and r/Predaddit may have intrinsic therapeutic benefits through the opportunity to write about and reflect on emotional experiences with people who may share a similar experience. A virtual environment may facilitate self-disclosure as a coping strategy for dealing with complex emotions and circumstances offering a place where men are more likely to reciprocate self-disclosure with other men (Barak & Gluck-Ofri, 2007). This might be particularly important when the emotions they are sharing, such as regret, resentment or anger, were silenced in previous face-to-face interactions (Moore & Abetz, 2019), or because they defy the dominant pronatalist ideology and are therefore socially unacceptable or taboo (Matley, 2020). In this way, such online forums may present an alternative to avoidant coping strategies that are associated with higher risk for mental health problems in new fathers' (Livingston et al., 2021). Connecting in a space where they feel a sense of connection, validation, empathy, and normalisation was identified by men in this study as valuable. For men experiencing more complex negative emotions, an online space like 'r/Daddit and r/Predaddit, which is also shared with those who are experiencing positive emotions, introduces a spectrum of subjective experiences.

4.3. The purpose of communication

In the context of unintended pregnancies, many men used the online forums for seeking and offering normalisation. Normalisation might

assist fathers to cope with difficult challenges and instill confidence in their own abilities (Fletcher et al., 2019). In particular, it may be important in the context of a non-normative stance that is contrary to the dominant pronatalist discourse of desiring and having children (Heitlinger, 1991). Unintended fathers may believe that their thoughts and feelings sit outside the bounds of what is considered socially acceptable and may therefore be reluctant to express them freely (Moore & Abetz, 2019). Therefore, these fathers may be reaching out on r/Daddit or r/Predaddit due to the breadth and depth of narratives on these subreddits, the pseudonymity for posters, and the culture of acceptance among its users. This is evident in the responses that offered up non-judgmental, normalizing posts designed to offer some validation '*you are not alone'* and hope '*it does get better'* to the person who posted their concerns. The spectrum of experiences and emotions that exist in online spaces such as Reddit can allow users to begin to find common ground with others who share elements of their subjective experience.

Men also sought and provided information and support. Offering father-to-father advice was one way of providing each other with support online, often illustrated with personal anecdotes. When it came to bonding with baby, some suggested '*give it some time'* and '*talking to the belly',* there were also suggestions of seeking professional help and mindfulness '*just be with him'.* Forums like Reddit provide a space for new and expecting fathers to both seek out and offer supportive communication, which can buffer against the impact of mental ill-health and lower perceptions of stigma (MacGeorge et al., 2011) particularly in the context of a pregnancy that may be unwelcome or unexpected. This support from peers may be particularly important for men who may have felt they should focus on the new mother's emotional needs, to their exclusion of their own (Das & Hodkinson, 2019a) and in the context of a perinatal environment that is historically mother-infant centric. Men may have been turning to their peers for support, a place where they felt they could be open and vulnerable, due to the intensity of the thoughts and feelings they posted. New fathers may use online environments to disclose struggles because this mode of connection with others holds less perceived risk, guilt or shame than disclosing to loved ones (Das & Hodkinson, 2019b). Disclosure may feel more authentic with peers, more accessible and without the stigma of formal clinical support (Venning et al., 2020). New and expectant unintended fathers experience a gap between the support they would like to have from others and what they actually receive, which is linked to higher perceived stigma (Crowley et al., 2019). If unintended fathers are not receiving the support they need, it makes sense that they are seeking out online spaces where that support is available. Online forums such as r/Daddit and r/Predaddit could be considered an adjunct to formal and professional support and health services need to consider the needs of expectant and new fathers.

4.4. Clinical implications

Increasingly, not wanting a child is a deliberate pathway of couples, and men who make this choice report feeling outside the norm (Smith et al., 2020). If, or when, these men then become an unintended father, the need for professional supports is paramount but they may face barriers including perceptions of stigma (from self or community) (Mackenzie, 2018) and access to appropriate services. It is therefore imperative that there is non-stigmatizing screening conducted by health professionals (Macdonald et al., 2021) so that direct and appropriate support of new fathers during the perinatal period can be provided, enhancing the paternal, maternal, and infant experience. Recent recommendations for improving engagement with men in psychological treatment include an approach that is strength-based and action-orientated, which establishes trust and cultivates independence and empowerment of men (Seidler et al., 2018). This study highlights the need for the development of father-specific antenatal care, with a strength-based approach that accounts for the varying levels of preparedness for parenthood and the broad emotional spectrum experienced, particularly for men entering fatherhood reluctantly. These findings may broaden our understanding

of unintended fathers' concerns and emotional responses. Therefore, this enhances the capacity of professionals to tailor father-specific support that can begin to normalize the experience for men who experience ambivalence or reluctance about becoming a parent.

4.5. Strengths and limitations

This study has drawn on a novel and ecologically valid method to capture the subjective experience of unintended fathers. We were able to overcome notable limitations of much past qualitative research, specifically (i) the difficulty of recruiting and retaining fathers, by capturing an extensive sample in a naturalistic and pseudonymous setting and (ii) the potential avoidance of vulnerable topics sometimes present in qualitative interviews (due to stigma, social norms and social desirability bias) via the pseudonymous nature of r/Daddit and r/Predaddit. The current study further demonstrates the strength of using big data approaches to augment the qualitative analysis of online data (Teague & Shatte, 2018, 2021; Westrupp et al., 2020).

This study also has a number of limitations that should be considered when interpreting the results. First, fathers on r/Daddit and r/Predaddit were a self-selected group who chose to use this online medium of communication (Erera & Baum, 2009). Additionally, although disparities in internet access across age, sex, race, income and education have decreased over time, they still exist such that this may limit the generalisability of the results (Greenberg-Worisek et al., 2019). These data represent a snapshot of a moment in time that may not reflect communication needs of fathers under all circumstances. For example, we did not include data past the first infections of Covid-19, given that social restrictions such as remote learning, working from home, changes to perinatal care, changes to support structures would have likely changed the nature of the study, which is an area worthy of separate study (Lee et al., 2021; Teague et al., 2021). Data were also decontextualised conversations between anonymous people in an online forum; inherent in this is the inability to authenticate authorship. Additionally, although reciprocal dialogue was not a feature of the current study, future research could use data from Daddit and Predaddit to explore men's exchanges and dialogue with each other. While this study provides insights into the diverse experiences and vulnerabilities of unintended fathers, there is still much to learn about how fathers specifically navigate these vulnerabilities, which could be explored through future research that follows men's trajectories using longitudinal data.

4.6. Conclusions

The current study provides important insights into the subjective and authentic experiences of men transitioning into unintended fatherhood. We used a two-step approach to target a population who are less likely to present for formal support due to societal expectations, stigma or limited access and knowledge of appropriate supports. Our findings demonstrate that the communication of these men extend across three specific domains: (i) men's concerns, (ii) affective expression and (iii) the purpose of communication.

The current study highlights several key areas of concern that men are struggling with: (i) their mental health, (ii) bonding with baby, (iii) changes to their relationships and (iv) financial strain. The results also highlight that men who did not expect to become fathers experience heterogeneous emotions, ranging from excitement to ambivalence to regret. Finally, the results highlight that unintended fathers offer each other advice, support, normalisation, and a reframing of problems based on their own lived experiences. These findings have important implications for informing both personal and professional support systems for these men during the significant life transition into fatherhood. Antenatal support for fathers that takes into consideration the concerns they have expressed, the range of emotion they are experiencing, and their support needs will likely have benefit for fathers, partners, children and the family system as a whole.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmqr.2022.100085.

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