

The Right Time: Women, Medicine, and Maternal Age in 1980s Aotearoa New Zealand

Abstract

In the late twentieth century, increasing numbers of women in wealthy nations waited until they were aged in their 30s to give birth and become parents. This article examines responses to the changing demographics of maternity among social researchers, doctors, pregnant women, and mothers in Aotearoa New Zealand. The article analyses raw research data from historical social survey projects *The Right Time* (interviews completed in 1982–1983) and *Motherhood After 30* (1987) by the grassroots organisation the Society for Research on Women in New Zealand.

Surveys, statistics, and increasingly direct evidence from research participants symbolised modern social life in the mid-twentieth century. Yet, in 1966, women in Wellington, New Zealand concluded that they had been largely ignored in this endeavour. A group of volunteers pledged to produce the missing data and therefore improve policy making. This article analyses the Society's publications and interview schedules to uncover how researchers, medics, pregnant women, and mothers forged new connections between age, pregnancy, and parenting during the 1980s. During this time, pregnant women advocated for a new model of prepared and mature maternity. A few years on, however, many among them identified the persistence of traditional gender roles that disrupted their plans. At the same time, physicians and public health officials in wealthy nations began to teach women to associate conception at older ages with increased risks, especially of genetic anomalies. Social research archives reveal tensions between these new, population-level recommendations and women's proactive approaches to planning their lives and families. New Zealand's distinctive survey records help to explain the impacts of new medical tests, reproductive technologies, and public health recommendations in the context of women's fresh approaches to maternity during the 1980s.

Article text

The title and cover of the 1984 study *The Right Time: A Study of Women Expecting their First Child After the Age of Thirty* directed readers' attention to New Zealand women's decision-making about the best time to conceive, and the growing number among them who waited until they were aged in their thirties to have children.¹ The cover illustration depicted a baby sitting inside the outline of a pocket watch, indicating the passage of time and its close relationship to women's reproductive choices (Figure 1). The 1984 image did not emphasise biology in the same way as later versions that placed a ticking clock over a woman's stomach and reproductive organs. Instead, the phrase 'The Right Time' indicated that women had the ability to plan their lives and select the best moment for childbearing. The follow-up study *Motherhood After 30: Expectations and Experiences* investigated the broad range of factors that informed women's reproductive lives. These studies were outliers among international literature and advice manuals, which emphasised maternal age as a reproductive risk factor.

Figure 1: The cover of *The Right Time* depicted a baby inside a clock instead of locating the ticking 'biological clock' over a woman's womb. *The Right Time: A Study of Women Expecting Their First Child after the Age of Thirty*, Society for Research on Women in New Zealand Wellington Branch, 1984. Image published with permission from the illustrator, Annie Pegler.

The *Right Time* and *Motherhood After 30* studies open windows onto the reproductive strategies and experiences of New Zealand women who chose to have children aged in their thirties. The *Right Time* researchers established a wide remit that encompassed women's social, financial, and psychological, as well as medical, motivations for delayed childbearing. The women who produced these studies belonged to the Society for Research on Women, which aimed to provide

data on women's lives to direct social policies that addressed women's needs. These were voluntary, grassroots researchers who closely identified with women who participated in their research projects, used collaborative research methods, and pursued longitudinal data on women's lives. As a result, the *Right Time* and *Motherhood After 30* studies asked unusually broad and open-ended questions about women's reproductive decisions and experiences. The studies' archives, which include their raw interview data, provide unique records of women's conversation about maternal age that uncover how women weighed medical recommendations in relation to other priorities. In particular, the *Right Time* and *Motherhood After 30* archives spotlight the uneasy relationship between women's proactive approaches to life planning and the simultaneous medical focus on age-based risk factors. New Zealand women internalised medical approaches to maternal age slowly and unevenly due to the challenges of integrating population-level recommendations with individualised life plans.

Few studies of medicine or women's reproductive lives have provided sustained analysis of the production and reception of historical ideas about maternal age. Jenna Healey has shown how parallel social panics over teenage pregnancy and infertility in 1970s North America created social pressure on women to have children within a narrow band of the life cycle, ideally between the ages of around 25 and 35 (Healey 2016). Findings on the reproductive effects of maternal age informed twentieth-century approaches to infertility, Down Syndrome, and prenatal genetic testing (Marsh and Ronner 1996; Thomas 2017; Löwy 2018a; Stern 2012). Sociological studies have demonstrated that the associated rise of reproductive risk factors, prenatal testing, and prenatal screening has triggered guilt, fear, and anxiety among pregnant people and parents (Rothman 1993; Lupton 1999; Mann and Berkowitz 2023). This article connects the social, medical, and personal histories of maternal age, and investigates the combined impact of late twentieth-century approaches to delayed childbearing on women's personal lives and decision making.

Maternal Age in 1980s Aotearoa New Zealand

From around 1970, declining birth rates directed attention to delayed childbearing in wealthy nations around the globe. New Zealand's particularly long and pronounced 'baby boom' was followed by a 'baby bust' that focused local attention on women's reproductive decisions. Aotearoa's baby boom lasted from 1943 until 1973, with peaks of the birth rate in 1960 and 1970 (Pool, Dharmalingam, and Sceats 2007, 167). These changes occurred almost entirely among Pākehā (New Zealand-born Europeans), as Māori birth rates were already high. Then, from the mid-1970s, Pākehā returned to pre-war patterns of delayed childbearing (Pool, Dharmalingam, and Sceats 2007, 241). In 1970, 7.1 percent of all first births in New Zealand were to women aged over 30 (Society for Research on Women 1991, 2). This number more than doubled to 15.8 percent by 1983. At the same time, there was a 25 percent drop in the number of first births to women aged under 25. Māori whānau (families) had fewer children from this time but retained earlier first births. These patterns persisted during the 1980s and 1990s so that childbearing, particularly among Pākehā, was 'compressed' among people between their late twenties and late thirties.

Together, Māori and Pākehā produced a notable 'baby bust' in Aotearoa from the mid-1970s (Pool, Dharmalingam, and Sceats 2007, 217). By this time, many New Zealand women had access to contraceptive technologies that enabled them to plan, delay, or limit their pregnancies. New Zealand women adopted the contraceptive pill particularly rapidly after 1961 (Brookes, Gooder, and De Castro 2013). Women's early and enthusiastic use of the pill was encouraged by New Zealand's system of free maternity care that included postnatal visits to a general practitioner. Historians have shown that New Zealand family doctors preferred to prescribe the

pill rather than engaging women in intimate discussions about using condoms or fitting their diaphragms. However, Aotearoa's social emphasis on children and family life persisted during the 1960s. Married women's domesticity had been supported by the New Zealand state between 1936 and 1954 through 'breadwinner' wages for men that were sufficient to support a family (Nolan 2000, 23). Men's wages remained higher than women's in the 1950s and 1960s. The government introduced equal pay for women in the state sector (a fifth of the female labour force) in 1960. However, successive governments did little to support working mothers. New Zealand introduced unpaid parental leave in 1980 but childcare options remained limited. This forced many women into part-time work for low wages that made them vulnerable to unemployment during periods of recession (Brookes 2016, 383–385). By the mid-1970s, many New Zealand women had both the contraceptive means and the financial motivations to delay parenthood.

The Society for Research on Women made an early contribution to public discussions of maternal age and delayed childbearing in Aotearoa. Women's magazines like the *New Zealand Woman's Weekly* were beginning to consider older motherhood but had featured only a handful of articles on the topic when the Society published *The Right Time* in 1984 (Wheeler 22 June 1981; "Why is our Birth Rate so Low? New Zealand women give their reasons" April 1984). New Zealand women encountered medical perspectives on maternal age when they read media coverage of emerging reproductive technologies. Local journalists celebrated world-leading research in perinatal medicine by doctors at National Women's Hospital and described new infertility treatments and forms of genetic testing (Wall June 1984). New Zealand women also read international pregnancy guides that incorporated chapters on older motherhood for the first time (Wolfe and Goldsmith 1980). Women in Aotearoa were connected to the international women's health movement and homebirth movement (Bryder 2023). In 1982, leading homebirth advocate Sheila Kitzinger published a version of her birth book that specifically addressed pregnant women who were aged over 30 (Kitzinger 1982). However, the *Right Time* and *Motherhood After 30* studies de-emphasised medical perspectives on maternal age compared to both mainstream and feminist pregnancy guides published in the United States.

The Society's distinctive approach to maternal age was shaped by its grassroots organisation and its voluntary researchers. The Society emerged out of the particularly close connections between feminism and maternity in Aotearoa. Māori and Pākehā women commonly honed their leadership and advocacy skills in community organisations that championed infant health, such as Plunket, or childhood education, through Playcentre and Te Kōhanga Reo. Wellington women illustrated these connections when they established The Society for Research on Women in 1966 in response to a well-attended, Playcentre-led lecture series on 'the changing role of women' (Gawith et al. 1993). The Society's holistic interest in women's lives was illustrated by their large, quantitative, national surveys such as *Urban Women* (Society for Research on Women in New Zealand 1972). Local study groups complemented these ambitious ventures by producing smaller, local studies on issues that inspired them. The Wellington study group's investigations of maternal age built on the Society's keen and sustained interest in maternity. During the 1970s and 1980s, the Society published studies on single mothers, childcare, working parents, adoption, abortion, parenthood education, and childbirth. Maternity was a live issue for the Society partly due to the personal lives of its members, many of whom were educated women who had left paid employment to care for children. The Wellington study group that researched maternal age was made up of seven women, including three who were pregnant for the first time aged in their thirties (Society for Research on Women 1984, 4). These voluntary researchers closely identified with women who participated in their projects and felt determined to produce high-quality, high-impact findings to honour their contributions ([dataset] Interview with Jenny Neale, 30 June 2017, author's collection).

Figure 2: Members of the Right Time study group having a working lunch around 1981. From left: Lorraine Chambers with her daughter Sarah, Ann Barrie holding Jamie Milne, Elaine Prakash, Kay Switzer. Stella Milne was behind the camera. Image published with permissions from study group members, Kay Switzer, Stella Milne, and Ann Barrie.

The *Right Time* researchers recruited 51 Wellington women to participate in interviews between September 1982 and April 1983. They advertised the study in Wellington Hospital's antenatal classes, as well as through antenatal classes at Parents' Centres, and in doctors' surgeries (Figure 3). In doing so, the researchers spoke to a significant proportion of women who gave birth for the first time aged in their thirties over eight months in central Wellington. Wellington Hospital had recorded 80 such births in their reporting period between December 1982 and May 1983.

Figure 3: The poster for the *Right Time* study successfully recruited Pākehā and migrant women. Researchers made no clear appeal to Māori or Pacific women. Poster, Society for Research on Women Papers, 91-357-13, Alexander Turnbull Library, Wellington. Image published with permissions from members of the Right Time study group, Kay Switzer, Stella Milne, and Ann Barrie.

The *Right Time* researchers did not adopt the innovative and effective Indigenous research methods that the Māori Women's Welfare League developed in their 1981–1982 survey of Māori women's health (Murchie and Te Rōpu Wāhine Māori Toko i te Ora 1984). This was despite the Society's direct contributions to the League's training hui (meetings) for fieldworkers that were hosted by Waiariki, Tamaki-Makaurau, and Tainui iwi (tribes) ([dataset] Māori Women's Welfare League, research advisory committee minutes, 27 April 1978, 88-131-20/07; Māori Women's Welfare League, Hui timetable, 9–11 October 1981, 88-131-11/04). Society members witnessed the League's mana wāhine approach that included Māori women directing the research and completing the interviews. As a result, the League produced a higher number of interviews than they required (1,177 rather than 1,000) and met only 12 refusals. Rae Julian remembered Māori women's enthusiasm for the research that was symbolised by the unusual experience of being approached by someone who had not been selected in the sample and asked, 'Why aren't you interviewing me?' ([dataset] Interview with Rae Julian, 21 June 2017, author's collection) In contrast, the *Right Time* researchers failed to recruit Māori or Pacific participants such as the one Māori woman and three Pacific women who were aged in their thirties when they birthed their first babies during Wellington Hospital's reporting period (Society for Research on Women 1984, 7). Instead, the *Right Time* study engaged Pākehā women and women who had moved to New Zealand from Britain, Europe, and Singapore. The League provided insights on Māori women's maternity in the published version of their study *Rapuora*, which paid close attention to the impact of age and motherhood on women's health.

The *Right Time* and *Motherhood After 30* archives provide unique perspectives on women's reproductive lives. The *Right Time* interview schedules recorded answers to 77 questions, many of them with multiple parts. Five years later, in 1987, the *Motherhood After 30* researchers interviewed 37 of the 51 original participants in similar detail. Both the studies combined multi-choice and open-ended questions. Interviewers recorded women's words on the schedules, which provided blank spaces beneath each open-ended question. Researchers frequently added notes in the margins when they ran out of room or hoped to clarify women's responses. At least some interviews were recorded but the tapes were not archived ([dataset] Society for Research on Women, Follow-up interview 51, 91-357-08).² As a result, women's stories were not recorded verbatim. Instead, interviewers paraphrased women's accounts and noted their striking turns of phrase. The research team coded women's answers, analysed the data using SPSS software, and presented their findings in tables and statistics (Society for Research on Women 1984, 7–8). They selected case studies and quotations to support their quantitative data. These archives of

maternal age were co-produced by women who shared their stories and researchers who listened, took notes, coded interview schedules, and published the research. The published studies were distinctive contributions to the literature because they did not include chapters dedicated to medical perspectives. Instead, the *Right Time*'s chapters explored women's decision making, upbringing, education, careers, relationships, lifestyle choices, and emotions. *Motherhood After 30* revisited key questions about relationships, finances, and employment, and introduced new sections on the sizes of women's families, their use of childcare, and their approaches to parenting.

The 'Right Time' to Have Children

Wellington women who participated in the *Right Time* study during their pregnancies championed proactive, self-affirming approaches to conception. In a leading finding of the study, 86 percent of the women identified 'their own attitudes and life-styles' among the top three reasons that they decided to have their first child aged in their thirties (Society for Research on Women 1984, 2). Women's precise motivations varied. However, their decisions were underpinned by a shared commitment to planning their lives. The *Right Time* and *Motherhood After 30* studies displayed women's careful decision making about maternity by quantifying women's motivations and by quoting their life narratives.

Women's emphasis on life planning appeared novel to participants and researchers alike. For example, a lengthy section of the research investigated women's family backgrounds and encouraged them to reflect on the experiences of their parents, who had mostly started their families during the 1950s at relatively young ages (Society for Research on Women 1984, 44–45). These questions provided an opportunity for 21 of the women to cite their generationally distinctive approaches. Some described being encouraged by their families to 'broaden their horizons' before marriage and motherhood. Others hoped to avoid financial and personal difficulties their parents had faced. Within the surveys, the attitudes of older generations were interpreted by their adult daughters. Older women acknowledged the change in other forums. New Zealand poet Lauris Edmond highlighted the novelty of her daughters' life plans in an interview about pregnancy and childbirth ([dataset] Anne French interview with Lauris Edmond, 7 April 1993, MS-Papers-7372). Edmond said that her decision to have 'a lot of children' soon after her marriage in 1945 seemed like the sole or natural option: 'I didn't even consider. I didn't think about it. I just went ahead.' Looking back, Edmond reflected on the medical and personal questions she had never thought to ask: 'I didn't know whether I'd get sick or not. I didn't know how long it would be. I didn't know whether I was denying some major part of myself.' Edmond's question about self-identity resonates today given her celebrated, midlife reengagement with poetry and autobiographical accounts of her 'first life' as a wife and mother, which side-lined her creative talents (L.D. Edmond 1991; F. Edmond 2022).

One third of *The Right Time* participants viewed achieving financial stability as one component that determined 'the right time' to conceive (Society for Research on Women 1984, 68–69). In line with this aim, the *Right Time* cohort recorded higher than average household incomes during their pregnancies. This income was generated by two full-time salaries for all but three of the couples. A significant number were then able to use savings or investments to cover household expenses once they had children (Society for Research on Women 1991, 20). Women's focus on finances, which sometimes included buying their own homes, reflected the serious challenges facing women who attempted to combine paid work and childcare during the 1980s. Partly as a result of limited childcare options, women were overrepresented among low-paid, part-time workers and the unemployed (Brookes 2016, 383–385). The women in the *Right Time* study

belonged to a cohort of highly educated women who encountered improved workplace opportunities. However, motherhood made sustained changes to their working lives. Before the birth of their first child, all the women except one worked in paid employment (Society for Research on Women 1991, 24). All except three worked full-time hours. During the first year of parenthood only one woman continued in full-time work, and ten in part-time work. Five years later, several more women worked part time but only two were in full-time positions. Most women had expected to make a gradual return to work by picking up some work between six months and three years after their babies were born (Society for Research on Women 1991, 25–26). Few had anticipated that motherhood would cause such a decisive break in their careers. Women's new employment status also affected their home lives, relationships, and personal autonomy when their partners began to count them out of financial decisions (Society for Research on Women 1991, 10).

Women identified a 'stable relationship' as a second key component of the 'right time' to have children (Society for Research on Women 1984, 66). All of the women in the study were in long-term partnerships and all but two of them were married (Society for Research on Women 1984, 61). Several women underlined the significance of their romantic partnerships at the end of their first interview when researchers asked them to raise any issues the survey had failed to address. Deborah, for example, used the final moments of her interview to describe the 'secure and supportive environment' that was provided by her second marriage ([dataset] Society for Research on Women, Interview 35, 23 February 1983, 91–357–14). Once they had found the right partner, women described taking time to establish strong bonds. In response to the same open-ended question, Louise said that she had been married for eleven years and it had taken a long time for her marriage to feel sufficiently 'emotionally stable' to have children ([dataset] Society for Research on Women, Interview 74, 8 December 1982, 91–357–14). Louise and her husband had delayed conceiving because they were concerned about affecting their hard-won connection. Follow-up interviews proved that women had been correct to prioritise strong partnerships. Early parenthood posed a range of practical and emotional challenges for couples. During pregnancy, women frequently evoked shared goals and responsibilities. For example, 23 couples equally divided household labour (Society for Research on Women 1991, 11). This changed after having children. Five years on, only eight women said they equally shared domestic chores with their partner. Most women completed a majority or all of the work. Elaine recalled that she and her husband split domestic work equally when they were both in paid work ([dataset] Society for Research on Women, Follow-up interview 76, 91–357–08). Now, she said, she did 'most of the housework'. She felt guilty asking her husband to do more because she was 'at home all day'. Similarly, Louise observed that having a child 'hardwired' the couple's ideas about gendered roles ([dataset] Follow-up interview 74, Society for Research on Women, 91–357–08).

Parenthood caused dramatic changes to partnerships and produced complex feelings. Some women said that having children generated new connections. Jennifer described her husband as 'extremely supportive' and said that parenting 'brought us closer' ([dataset] Society for Research on Women, Follow-up interview 1, 25 November 1987, 91–357–08). Others felt disappointed by their partners' limited contributions to parenting and domestic work. Two couples in the study had separated by the time of the follow-up interviews. The emotional impact of parenting could be intense, especially when women were isolated due to physical distance from family and friends. Wendy said that 'physically and emotionally the first 6-12 months were traumatic' ([dataset] Society for Research on Women, Follow-up interview 13, 91–357–08). She highlighted her exhaustion and the subsequent 'strain' on the couple's relationship. Linda said that the effect of early parenthood on her relationship was 'shattering' ([dataset] Society for Research on Women, Follow-up interview 31, 91–357–08). She recounted her resentment that she was

fatigued and dependent on her husband's company, while he continued to do his 'own thing' rather than care for their two babies. Women's complicated feelings produced split statistics on the effects of having children. When asked to come down on one side or the other, 14 women in the follow-up study classed the effects on their relationship as favourable or very favourable, while 21 women identified them as unfavourable or very unfavourable (Society for Research on Women 1991, 13).

New Zealand women harnessed aspects of psychology and child development to determine the 'right time' to have children. Historians have traced the post war popularity of psychology and the field's specific contributions to parenting and childbirth (Thomson 2006, 2013; Bryder 2003, 119; Kedgley 1996, 168, 173–179). In 1982, psychological researchers Pamela Daniels and Kathy Weingarten argued that 'Parenthood is a powerful generator of development. It gives us an opportunity to refine and express who we are, to learn what we can be, to become someone different' (Daniels and Weingarten, 1982). Accordingly, many women who emphasised financial stability and strong partnerships said they were creating a positive environment for children. Some among them took a step further to argue that women's happiness and fulfilment were important parts of parenting. Julie said that becoming a mother aged in her thirties had conferred psychological advantages because she felt 'settled', 'confident', 'certainty about self', and that she had 'more to offer as a person' ([dataset] Society for Research on Women, Interview 4, 27 October 1982, 91–357–14). In follow-up interviews, women cited specific instances when personal qualities such as maturity and inner strength had arrived with age and helped them to advocate for a child's needs ([dataset] Society for Research on Women, Follow-up interview 55, 91–357–08). Conversely, some women associated mental flexibility with youth and worried about adapting to the significant changes that pregnancy portended ([dataset] Society for Research on Women, Interview 16, 3 March 1983 and Follow-up interview 69, 91–357–08; Interview 39, April 1983, 91–357–14).

Women's close attention to personal development proved vital. In addition to experiencing major changes in their finances, work, and home lives, many women felt that motherhood upended their identities and emotions. Rosemary described caring for children as 'constant learning from word "go"' ([dataset] Society for Research on Women, Follow-up interview 51, 91–357–08). Linda called the experience 'profound' ([dataset] Society for Research on Women, Follow-up interview 31, 91–357–08). A set of staccato interview notes evoke the depth of Heather's feelings: 'Joy—intense rewarding experience. (Never love anyone as much as that.) Never alone again! Blows your mind. Makes you look at things freshly again. Learnt a lot. Very emotional. Opens you up emotionally' ([dataset] Society for Research on Women, Follow-up interview 16, 91–357–08).

Women commonly emphasised the psychological challenges of motherhood above all else. Louise determined that the most significant change to her life was how 'people treat you' condescendingly as 'only' a mother ([dataset] Society for Research on Women, Follow-up interview 74, 91–357–08). Such experiences politicised participants who subsequently 'thought more' about the 'life position of women' and 'unfair' gender relations ([dataset] Society for Research on Women, Follow-up interview 13, 91–357–08). However, women typically looked internally to diagnose and solve their problems. On becoming a mother, Gail encountered unanticipated challenges including postnatal depression, separating from her husband, and the difficulties of combining motherhood with her active working life ([dataset] Society for Research on Women, Interview 40, 20 April 1983, 91–357–14; Follow-up interview 40, 91–357–08). The transformations in her life were 'devastating'. Yet Gail responded by reassessing her own views about motherhood, such as her belief that she should be 'a real person doing real things earning money' alongside caring for a child.

Many women, including Gail, combined such internal reflections with new contributions to voluntary organisations. Twenty-two participants in the follow-up study volunteered for early childhood groups and other community organisations (Society for Research on Women 1991, 16–17). Marion, for example, left her position as a solicitor after having her daughter. She reported momentous changes to her finances and relationship. Nevertheless, like other women, Marion said the most significant transformations were her ‘loss of status’ and the demands of ‘redefining and learning a new role’ ([dataset] Society for Research on Women, Follow-up interview 77, 91–357–08). In response, Marion adopted a wide variety of part-time work, ranging from census enumeration to correspondence school marking. At the same time, she volunteered for Plunket and a support group for new mothers. The follow-up interviews highlighted that women’s lives did not always unfold as they had planned. Nevertheless, participants continued to draw on ideas about personal development to meet the challenges of early parenthood.

Medical Approaches to Maternal Age

In the 1980s, New Zealand researchers and research participants engaged reproductive risk factors and their emotional effects. Dianne said that she read extensively about birth, scans, and birth defects, which threatened to make her ‘neurotic’ ([dataset] Society for Research on Women, Interview 18, 9 April 1983, 91–357–14). She imagined that pregnancy felt different in 1951, the year she was born. Dianne’s mother had been 20 when she gave birth to Dianne, the second of her six children. Dianne said that her mother felt ‘no fears’ during pregnancy, even though her pregnancies carried the risk of life-threatening Rh incompatibilities in the decades before foetal blood transfusions and Rh vaccinations (Casper 1998). However, Dianne’s interview, like the *Right Time* and *Motherhood After 30* studies, integrated medical approaches to reproductive risk factors with personal and generational perspectives.

The *Right Time* and *Motherhood After 30* researchers treated medical approaches to maternal age as minor components of women’s decisions about when to conceive. The studies each included one question that asked women to rank medical factors against their other priorities as they reflected on the reasons for the timing of their pregnancies, and any disadvantages of their choice. During *The Right Time* interviews, many of the women commented on their experiences of fertility and infertility (Society for Research on Women 1984, 30). One quarter of the women said that it had taken them some time to conceive: five had attempted to conceive for up to one year, four for up to two years, and four for longer periods of time. As a result, two couples had started adoption processes. However, only seven of these women ranked infertility as an important reason for the timing of their pregnancies. Most of the women said that their personal attitudes, relationships, and lifestyle were more significant. In the published study, *The Right Time* authors summarised that advanced maternal age was ‘not considered as important as the woman’s general health and the quality of care she receives’ (Society for Research on Women 1984, 73). Their conclusions were repeated by study participants including Wendy, who advised other women to ‘have confidence in your decision. Never be deterred by the age factor in taking account a reasonable standard of health’ ([dataset] Society for Research on Women, Follow-up interview 13, 91–357–08).

Five years on, researchers opened new conversations about the medical implications of advanced maternal age by asking women whether the ‘risk of foetal abnormality’ was a key disadvantage of older parenthood. Twelve of the women indicated that this medical question loomed large in their experiences (Figure 4). Women ranked the risk of foetal anomalies as the fourth most significant disadvantage of delayed childbearing, after their loss of personal freedom, lack of

energy, and diminished financial independence. The *Motherhood After 30* study recorded New Zealand researchers' and research participants' heightened awareness of amniocentesis and reproductive risk factors. At the same time, the study's raw interview data reveal the wide range of women's responses, which were driven by shifting medical messages and the search for a workable relationship between expanding medical information and women's commitment to planning their reproductive lives.

Figure 4: In 1987, 12 of 37 interviewed women said that the risk of foetal anomaly was a disadvantage of becoming a parent aged in their thirties. *Motherhood After 30: Expectations & Experiences*, Society for Research on Women in New Zealand Wellington Branch, 1991, p. 55. Table published with permission from members of the Motherhood After 30 study group, Judy Owen, Mary Newman, and Lynn Peck.

Overall, survey participants strongly defended their decision to conceive in their thirties and recommended the decade as an ideal time for childbearing. In doing so, New Zealand women engaged historical developments since the 1970s by defining a window of socially acceptable childbearing between their late twenties and late thirties. Healey has shown how the social panic over teen pregnancy since the 1970s established a clear lower limit for ideal childbearing (Healey 2016). Several New Zealand women, including Elaine, argued that before 25 was 'definitely too young' ([dataset] Society for Research on Women, Follow-up interview 76, 91–357–08). In contrast, 30 was 'a good time' to have children, and there was not 'much difference between the age of 25–35'. New Zealand women told stories and volunteered advice demonstrating how this narrowing band of time produced distinct pressures. Helen and her partner nominated her thirtieth birthday as the moment they should begin 'thinking' about parenthood ([dataset] Society for Research on Women, Interview 6, 11 November 1982, 91–357–14). However, the couple also identified 30 as an upper limit for conceiving their first child because 'medically ... it was best not to be over 30'. Unsurprisingly, the couple perceived that their rushed decision to conceive had been 'forced on them' by events. Similarly, Sally advised women who wanted children to conceive 'as soon as possible after 30' ([dataset] Society for Research on Women, Follow-up interview 56, 91–357–08).

Presenting maternal age as a medical risk factor was a new approach that built on long-standing ideas about the dangers that older women faced during pregnancy and childbirth. Historically, doctors and midwives had advertised and debated the idea that women who gave birth for the first time at older ages faced difficult labours and births (Healey 2016). These ideas were embedded in language that women encountered during antenatal care, including the term 'elderly primigravida' that was introduced in 1958 to label women who were pregnant for the first time aged over 35, although medics used a range of ages between 30 and 40 years (Silverton 1993). By the late 1970s, doctors, scientists, and public health officials were pursuing new publicity campaigns to inform women about the link between advanced maternal age and children born with Down Syndrome (Löwy 2018a). Few commentators—either then or now—considered the impact on people with Down Syndrome of describing a child with Down Syndrome as an inherent risk or negative outcome, rather than considering how to better support people living with disabilities (Herzog 2018).

By the 1980s, risk factor medicine dominated discussions of maternal age in the US literature. The pregnancy guide *Practical Pregnancy* included a chapter 'When You're Over Thirty' that led with medical considerations and covered fertility, genetics, amniocentesis, miscarriage, multiple births, and pregnancy, labour, and birth (Wolfe and Goldsmith 1980). In *Birth Over Thirty*, Sheila Kitzinger gathered and published women's testimonies but paid almost as much attention to

medical approaches. Four of Kitzinger's nine chapters foregrounded medical perspectives on conception, prenatal testing, antenatal care, and childbirth (Kitzinger 1982).

Authors used risk factor tables to help readers visualise the connections between maternal age and reproductive risks. In the chapter 'Will the Baby Be All Right?', Kitzinger reprinted a risk factor table showing the 'approximate risk' of having a child with Down Syndrome at different maternal ages (Kitzinger, 1982, 50). Researchers had recently produced these numbers by studying the birth certificates for white children born in New York State between 1963 and 1974 (Hook and Chambers 1977; Simpson 1980 168). The authors of this research were among the earliest to specify how the likelihood of having a child with Down Syndrome increased with each additional year of age, rather than using five-year intervals. As Hook and Chambers pointed out, the habitual use of five-year intervals in scientific studies inaccurately credited the thirty-fifth birthday with outcomes that were observed among women aged 35 to 39. Kitzinger printed the finer-grained analysis and provided yearly intervals for ages 35–49 but, contradictorily, rounded several of the study's figures.

Throughout the 1980s, New Zealand women navigated overlapping and ambiguous messages about the implications of advanced maternal age. As a result, women who participated in the *Right Time* and *Motherhood After 30* studies adopted a range of approaches to the medical advice. Virtually the only clearly identified boundary was the age of 40 as an apparent upper limit for safe pregnancies, childbirth, and parenthood. This was distinct from the watershed of 35 in medical studies, and even further from the age of 30 that framed most media commentary on delayed childbearing. Carolyn made the direct comparison when she reported that she 'would have medical worries' about pregnancy 'if she was over 40, not 30' ([dataset] Society for Research on Women, Interview 54, 27 January 1983, 91–357–14). Several women shared that they did not want to care for young children or give birth after 40 ([dataset] Society for Research on Women, Follow-up interview 77, 91–357–08). Some participants gave this reason for their decision to have fewer children than they had hoped or anticipated ([dataset] Society for Research on Women, Follow-up interviews 77, 35, 01, 91–357–08). The age of 40 loomed larger as the cohort of women aged. During the *Right Time* study, 88 per cent of the women were between 30 and 34 years old (Society for Research on Women 1984, 7). Five years on, the youngest women in the group had reached their mid-thirties and the medical recommendations began to sound urgent. In 1987, Sally said that she felt 'irresponsible' to be pregnant with her third child at the age of 42 ([dataset] Society for Research on Women, Interview 54, 27 January 1983, 91–357–14).

The second half of the twentieth century was dominated by novel, risk-based approaches to disease that transformed approaches to maternal age (Aronowitz 2015). The chronic illnesses that emerged as visible, population-level problems following the Second World War required new forms of epidemiological analysis. The Framingham Study of heart disease that began in the 1940s provided the transformative 'risk factor' model for chronic illness by studying the population of Framingham, Massachusetts, over many years and coined the term 'risk factor' in 1961 (Madarász-Lebenhagen 2013; Aronowitz 2015, 85). The Framingham study initially intended to develop and test better methods of diagnosing early cases. Instead, its statistical findings began to highlight the risk factors (such as high-fat diets, high blood pressure, smoking, and lack of physical activity) that statistically increased an individual's risk of dying of a heart attack. Researchers began to publish their striking findings in the late 1950s just as heart disease became a high-profile international issue. Framingham's findings transformed medicine by establishing ideal values for measurements such as body weight and blood pressure and providing a new basis for medical treatments, which could now respond to predisposing factors rather than symptoms. Research that established the harmful effects of smoking provided equally

influential examples of the power of statistics to transform knowledge of health and disease (Berlivet 2005).

The reframing of maternal age as a risk factor for Down Syndrome was powered by a combination of new technologies, legal rights, statistical techniques, and financial calculations. Scientists had demonstrated the link between advanced maternal age and children born with Down Syndrome during the 1930s (Zihni 1994; Wright 2011; Healey 2016). In 1950, Sheldon Reed and Jan Book translated epidemiological data on the ages of mothers to children with Down Syndrome into a figure that could be easily communicated to women (Healey 2016, 71). However, doctors were initially reluctant to talk about these findings because there was nothing that an individual could do to determine if their pregnancy was affected, or to influence its outcome. This changed during the second half of the twentieth century. In the 1950s cytogeneticists provided a full chromosome map and Jerome Lejeune identified that the cause of Down Syndrome was a third copy of chromosome 21. In the 1960s, physicians first used amniocentesis, which drew a small amount of amniotic fluid from the uterus by needle, to study foetal cells and diagnose genetic anomalies. Finally, in the 1970s, the legalisation of abortion in many Western nations provided women with the option to end affected pregnancies if they did not wish to parent children with disabilities. In 1977, New Zealand passed abortion legislation that allowed doctors to provide abortions based on ‘serious danger’ to a woman’s life, physical health, or mental health, although it took a few years for doctors to realise they could interpret the law liberally (Brookes 2016). The ‘technological system’ for prenatal testing for Down Syndrome was established by the early 1980s (Cowan 2008).

Public health recommendations and risk factor tables reinforced landmark ages for reproductive risks. At the same time, medics and policymakers frequently adjusted the boundaries of age-based prenatal testing. Women simultaneously learned to pay attention to their ages and discovered that the significant birthdays moved around, leaving space for personal interpretations of the advice. In the United States, amniocentesis spread across the country during the 1960s and became widespread in the 1970s, when the media informed Americans about the test’s technical details and potential consequences (Stern 2012, 153). From the mid-1970s, amniocentesis became an expected part of prenatal care for women aged over 35 (Löwy 2018a). This was reinforced by a series of legal rulings in the late 1970s that held US obstetricians responsible for the costs of raising children with Down Syndrome if they did not inform women aged over 35 about the risk and the availability of testing (Healey 2016). American medical clinics were heavily incentivised to develop and integrate specialist genetic counselling.

Aotearoa New Zealand’s 1975 Obstetrics Regulations were accompanied by guidelines recommending that doctors offer amniocentesis to pregnant women aged over 40 ([dataset] Maternity Services Commission, 9 March 1976; Helen R. McCreanor, ‘Antenatal Diagnosis of Genetic Abnormality by Amniotic Fluid Examination’, R22503269, Archives New Zealand). However, the availability of tests was severely limited because only a handful of Aotearoa’s hospitals had the equipment and laboratory expertise to offer them. The country had not developed genetic counselling services to identify women who qualified or advise them about their results. By 1984, the technology was in place in the main centres and National Women’s Hospital in Auckland offered amniocentesis to pregnant women aged over 37 at the rate of six to eight tests per week (Wall June 1984). New Zealand women like Carolyn critiqued this policy and recommended that ‘women over 30 should be told about amniocentesis test’ ([dataset] Society for Research on Women, Follow-up interview 54, 91–357–08).

Women frequently perceived risk and safety through the lenses of their reproductive histories and the experiences of women around them. Student research in the 1960s–1970s recorded New

Zealand women's careful self-surveillance during pregnancies that followed miscarriages, stillbirths, or the births of infants with Down Syndrome (Cussen and Mackey 1961; Sharr 1970; Jones 1977; Fitzsimons 1978). In 1982–1983, five women in the *Right Time* study described feeling worried about the possibility they would have a child with genetic anomalies. Several among them reflected the ambiguous public messaging by hedging their language. Susan clarified that her concern about genetic anomalies was not a 'big worry' ([dataset] Society for Research on Women, Interview 2, 23 September 1982, 91-357-14). Kathleen recognised the higher risk but said she had been 'reassured' by others ([dataset] Society for Research on Women, Interview 38, 10 April 1983, 91-357-14). Deborah's fears were gradually assuaged because she experienced 'such a normal pregnancy' ([dataset] Society for Research on Women, Interview 35, 23 February 1983, , 91-357-140). Only one woman, Frances, had amniocentesis, because her husband's brother had Down Syndrome ([dataset] Society for Research on Women, Interview 75, 29 November 1982, 91-357-14).

Policies about when to offer women amniocentesis depended on calculations about relative risks and financial costs that were rarely communicated in full to pregnant women. Amniocentesis introduced risks to pregnancies that ranged from vaginal bleeding or amniotic fluid leakage to miscarriage, especially if the needle hit the foetus or the placenta. The risk decreased during the 1960s and 1970s as doctors gained access to ultrasound machines to watch the path of the needle, and as the resolution of ultrasound images improved (Löwy 2018b). In 1971–1973, the US National Institute of Child Health and Human Development (NICHD) established an amniocentesis registry and completed the first blind control study that studied 1,040 women who had amniocentesis, who were matched with 992 women in a control group (Stern 2012, 155–156). The study calculated a one to two percent rate of complications and a one in 200 risk of miscarriage. The NICHD figures have been cited in medical literature, advice manuals, and genetic counselling appointments until today (Oster 2019, 165). Medics cite the 0.5 percent risk of miscarriage and tables that list the likelihood of conceiving a child with Down Syndrome at yearly intervals to recommend amniocentesis at age 35, when the figures appear roughly equal, and it is worthwhile taking the medical risk to obtain the test's results.

Scholars point out that NICHD study provides a 'figure of convenience' that is an inaccurate assessment of medical risk and masks the financial motivations for age-based testing (Resta 2002, 805). In reality, the safety of amniocentesis is variable and depends on the skills of the physician and the quality of their equipment, while true rates of miscarriage are difficult to determine (Löwy 2018a). Robert Resta concludes that policymakers set the boundary for age-based testing at 35 based on financial calculations that compared the expense of funding tests with the lifelong costs of care for people with Down Syndrome. These calculations were influential during the 1970s and 1980s as economic pressures began to affect health care. However, physicians and genetic counsellors preferred to cite figures on medical risks and benefits because they provided an apparently scientific and palatable reason to recommend amniocentesis to some women and not others. Women received medical advice about maternal age and reproductive risks that did not discuss the underlying evidence or its limitations.

Risk factor medicine and amniocentesis transformed people's experiences of pregnancy and parenthood in the late twentieth century. In the 1980s, Barbara Katz Rothman interviewed US women about their experiences of amniocentesis and observed genetic counsellors at work (Rothman 1983). Her research highlighted the interwoven and powerful effects on women of amniocentesis, prenatal diagnoses, miscarriages, abortions, and raising children with disabilities. Even women who did not undergo genetic testing were increasingly likely to encounter medical recommendations about both maternal age and reproductive risks. Attention to pregnancy intensified during the 1980s during the decade's 'prenatal care revolution' that engaged increasing

numbers of women and due to the simultaneous public ‘frenzy’ over reproductive risks that focused on alcohol, smoking, and drugs (Waggoner 2017, 11; Sarah 2021, 45). Since the 1980s, researchers have continued to demonstrate emotional impacts of prenatal testing that range from anxiety about the results, to depression among women who abort pregnancies or miscarry following amniocentesis (Thomas 2017, 3; Stern 2012, 166). Today, scholars identify an ‘epidemic’ of fear, anxiety, and mood disorders among pregnant people and parents (Menkedick 2020).

Since the 1980s, scholars have shown that the numerical odds and percentages used in risk factor medicine are poor ways to communicate medical information. Commonly, people do not relate to population-level information about the rates of disease, miscarriages, or genetic anomalies. Instead, people typically perceive virtually any level of risk as a source of ‘uncertainty and adversity’ that has emotional impact (Palmer and Sainfort 1993, 39). Both medics and patients interpret risk factors as ‘a sign of being between a state of health and a state of illness’ so that the ‘borderlines between risk of disease, disease and worry over disease become fuzzy’ (Weir 2007, 107). These trends are particularly significant for pregnant people who have encountered an increasing number of medical tests and medical recommendations (Lupton 2012). In this context, pregnant people engage prenatal testing seeking ‘reassurance’ about the health of their pregnancies. Carole H. Browner and Nancy Ann Press argue that this strategy is ‘essential for pregnant women living in a society that increasingly insists they abstained from all behaviours deemed “risky” to a developing foetus’ (Browner and Press 1995, 308–309). Yet there is little support for women’s decision making following prenatal diagnoses of chromosomal anomalies that can be expressed in a range of ways and could mean vastly different things for the health and lives of future children. Instead, pregnant people act as ‘moral pioneers’ as they navigate highly technical, yet often uncertain, prognoses (Rapp 1999).

Conclusions

Several strands of medicine, technology, and law intersected during the 1980s in ways that convinced physicians, public health officials, and the media to emphasise maternal age as a reproductive risk factor. The 1980s also marked a turning point for women, who weighed a new set of social, psychological, and medical factors as they decided whether and when to conceive. The history of this landmark decade traces the development of distinctive pressures on would-be parents, especially on pregnant people, and begins to measure their impact. The *Right Time* and *Motherhood After 30* studies provide points of comparison for evolving views that were recorded in surveys, medical research, and personal records between the 1990s and today. These historical sources track the personal impacts of medical discoveries, technologies, and public health campaigns as they were introduced, and invite us to consider historical and contemporary effects on maternal mental health.

Historical survey research data open windows on to the emotional impact of new attitudes towards age, reproduction, and risk in the second half of the twentieth century. New Zealand’s grassroots research projects offer distinctive perspectives because they invited conversations about women’s personal priorities and self-development alongside discussions of medical recommendations. The *Right Time* and *Motherhood After 30* studies reveal the awkward fit between women’s proactive stances towards preparing for pregnancy and parenthood, and the top-down, unsettled medical recommendations of the 1980s. It took time for New Zealanders to work out how to accommodate risk factors within their reproductive decisions. Yet the Aotearoa interview schedules also reveal women’s capacity to adapt as parenthood unfolded. These sources underline the potential of public health recommendations to shape people’s private lives in subsequent decades, as women learned to integrate medical advice with personal life plans.

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¹ It was not appropriate or possible to involve patients or the public in the design, or conduct, or reporting, or dissemination plans of this research.

² All names of research participants are pseudonyms.