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# OK Cupid, Stop Bumbling around and Match Me Tinder: Using Dating Apps Across the Life Course

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## Abstract

Social connectedness, sex, and intimacy are all factors associated with positive aging, facing individuals in society across the life course. Phenomenal technological developments in the 21st century have led to the increased use of smartphones, mobile apps, and dating apps for a myriad of services, and engagements. This paper focuses on two specific cohorts' who have the opportunity to engage with dating apps, older adults and young citizens with life-limiting or life-threatening conditions, and highlights issues related to the intersection of technology, societal constructions of age, disability, and online dating.

## Keywords

intimacy, older adults, life-limited conditions, loneliness, young adults, privacy issues, social isolation, loneliness, aging, sexuality

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## Introduction

Dating and relationships are an important part of a person's life, health, wellbeing, and social connectedness. Relationships vary and change, and for some people, these connections can be caring and loving, while for others they may involve adultery, abuse (physical, emotional, and mental) and differences of opinion, leading to separation, divorce, or other forms of relationship breakdown or transitions. Furthermore, relationships may be cut short due to illness or an unexpected death.

This position paper aims to explore the use of dating apps by two distinct population groups: older adults (50+ years) and young people with life-threatening and/or life-limited conditions (LLTC). In particular, the paper examines issues of social connectedness and isolation, prospective users' motivations, barriers and enablers to user engagement, issues and concerns associated to privacy, and sharing of information. The structure of this position paper includes an overview of sex, intimacy and sexuality from the standpoint of the two populations, an overview of existing dating apps, coupled with a discussion surrounding the challenges and enablers to using dating apps in contemporary society. We conclude by proposing a series of future work, and recommendations for moving this body of work forward.

This position paper primarily explores how dating apps impact the lives of people in the context of the UK, taking a life course perspective (Elder, 1985; Green,

2017; Hutchinson, 2018), in particular focusing on older adults and young disabled adults with life-limiting or life-threatening conditions, who may be socially isolated, lonely, and have limited experience and knowledge of using dating apps. We position the benefits of using dating apps within these two populations, while also identifying potential issues and concerns of dating apps with individuals who are, or could be perceived as, vulnerable. We discuss the existing literature within the fields of sex, intimacy, sexuality, and dating apps, followed by a brief overview of various dating apps, and possible risks associated to dating apps by vulnerable users who are unfamiliar with this mode of engagement.

Societal notions of, and activities related to dating, relationships, marriages/partnerships, and polyamorous relationships, have been (re)formed over time. For many people across the lifecourse meeting their soulmate, the love of their life, and someone who they have a mental, spiritual, emotional, and/or physical connection

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with—while complex—is a life goal (Sheff, 2016; Haritaworn et al., 2006, 2016).

Whether it is a more conventional, polyamorous (simultaneous intimate relationships with multiple partners) or other type of intimate relationship (Haritaworn et al., 2006, 2016) individuals can meet through various means including friendship/community groups and activities (e.g., dancing, sports, reading groups), a family connection, a chance meeting (e.g., a coffee shop, public transport, a night out), through work, or through formal arrangements made by family or community members.

Since the advent of mobile Apps (mApps), dating and relationships in 21st century society have taken a different direction and approach. For example, mobile dating apps can be downloaded and installed onto a smartphone (e.g., Apple iPhone, Google Pixel etc.). This in turn is the first stage to using dating apps, and for many users they will be able to login into the app via an existing social media site or will have to create a new profile. This will typically include uploading a photo, demographic details and choosing what type of relationships they are seeking, and their preferred gender(s).

We position the need for an interdisciplinary approach intersecting across the fields of gerontology, taking a lifecourse perspective, while gerontechnology and human computer interaction (HCI) focuses on the design, user experience (UX), development and engagement of dating apps is critical for ensuring all users are able to engage with different interfaces.

This position paper aims to understand the use of dating apps by two diverse populations in society. We take a life course perspective (Elder, 1985; Green, 2017; Hutchinson, 2018) to illustrate how older adults (50+ years) and young people with life-threatening and/or life-limited conditions (LLTC), in conjunction with the potential benefits, challenges, and risks associated to dating apps; while providing an understanding of sex, intimacy and sexuality in both older and younger adults. The structure of this position paper includes an overview of sex, intimacy and sexuality from the standpoint of the two populations, an overview of existing dating apps, coupled with a discussion surrounding the challenges and enablers to using dating apps in contemporary society. We conclude by proposing a series of future work, and recommendations for moving this body of work forward.

Choosing these two diverse populations was based on several reasons, (a) the growth in scholarly research surrounding older adults using technology to enhance social engagement, and reduce loneliness (Cotten et al., 2013; Czaja et al., 2018; Francis et al., 2019; Marston et al., 2019; Schlomann et al., 2020) but the absence of research specifically focusing on the use of dating apps by older adults, (b) the growth of scholarly research surrounding social connections and loneliness (Burholt et al., 2017; 2020; Dinkins, 2017; Holt-Lunstad et al., 2015; Marston & Morgan, 2020; Valtorta et al., 2016). Conversely, there are similarities surrounding loneliness

and social isolation with young disabled people with LLTCs (Lambert & Keogh, 2014) and their experiences of vulnerability and experience of technology (Hemmingsson, 2015).

## **Sex, Intimacy and Sexuality across the Life Course**

### *Older Adults*

A variety of literature surrounds sex, intimacy and sexuality in later life. While older people are living longer, research on sex in later life has tended to continue to focus on narratives of physical decline, compromised function and increasing dissatisfaction (Karraker et al., 2011; Tetley et al., 2016).

Wada et al. (2015) focused on the social norms attributed to older adults via newspaper ads and magazines portraying sexuality in later life within the online dating arena, identifying six themes associated with sexuality later in life: “(a) idealized sexuality for older adults; (b) sexual interests and functioning as declining in later life (c) more often than sustaining; (d) medicalizing and ameliorating sexual decline; (e) challenged the stereotype of older adults as non-sexual; and (f) claimed that sexual engagement in later life was valuable as it contributed to successful aging” (Wada et al., 2015, p. 40).

In addressing sustaining sexual interests in functioning as a theme, Wada et al. (2015) found that 14% of newspaper and magazine adverts focused on how the baby boomer generation, that is, those who experienced the sexual revolution and have the experience and knowledge of their bodies’ sexual needs and desires, which facilitates the ability to sustain sexual interest and functioning in later life (Wada et al., 2015). Additionally, sex is portrayed as a part of healthy aging; where quality of life is improved and associated with healthy relationships (Wada et al., 2015). Concluding, Wada and colleagues note how in exposing and challenging negative stereotypes of sexuality among older adults, it is important that societal attitudes by medical professionals may have repercussions to the well-being and sexual health of older citizens; where the lack of sex education can lead to “discouraging older adults from seeking information and guidance about their sex lives” (Wada et al., 2015) or far worse, the importance of check-ups related to sexually transmitted diseases.

Brown and Shinohara (2013) analyzed data from the 2005 to 2006 National Social Life, Health, and Aging Project; comprising of 3,005 citizens aged between 57 and 85 years, noting how 14% of singles were in a relationship. Furthermore, the study also revealed that men were more likely to date compared to women and that as they aged, the percentage of those in relationships declined (Brown & Shinohara, 2013). It was estimated that among the Baby Boomer generation, one-third of the population in 2013 was unmarried and the “proportion of middle-aged adults who are single had risen to 50% since

1980” (Brown & Shinohara, 2013, p. 1194). Almost all of the research associated with dating in later life was collected through qualitative studies, in a bid to explore the reasons why older adults seek or elude relationships, and most participants were women or widows (Brown & Shinohara, 2013). Furthermore, there appears to be gender differences associated to dating among older citizens, whereby men view dating as an opportunity to establish serious relationships that may lead to marriage; compared to women that seek companionship, while maintaining self-sufficiency, and without the burden of care for their aging partner (Brown & Shinohara, 2013). Thus, social connectedness was linked to the desire to date among older women and men (Brown & Shinohara, 2013). However, men with established social support felt less inclined to date (Brown & Shinohara, 2013).

McIntosh et al. (2011) aimed to understand and explore factors of attracting prospective partners based on personal advertisements posted online. This study reviewed 100 online dating profiles of older people and 100 dating profiles of younger people. They found that older individuals were more specific and selective in finding partners that met the characteristics they were looking for in a partner. Older females were interested in younger men, while older men were interested in younger women (McIntosh et al., 2011).

Griffin and Fingerma (2018) explored various content relating to online dating profiles of older people who were seeking either same sex or heterosexual relationships. This study explored the online dating profiles of same sex relationships, comparing different approaches to dating in later life, individuals’ motivations to seek romantic relationships, and how they portray themselves in online dating in contrast to heterosexual relationships (Griffin & Fingerma, 2018). Five themes were identified and were associated to same-sex relationships: (a) desire for a relationship; (b) hobbies and interests; (c) shared experiences; (d) romance; and (e) humor (Griffin & Fingerma, 2018); while it was found that the desire for a relationship was most prevalent in gay relationships (men seeking men) compared to lesbian (women seeking women), who were less inclined to seek long-term relationships (Griffin & Fingerma, 2018). The two themes that yielded no differences between same sex and heterosexual relationships were hobbies, interests and humor, which were consistent with similar scripts found in online dating sites (Griffin & Fingerma, 2018).

Gewirtz-Meydan and Ayalon (2018), defined the notion of online dating as the practice of using dating sites to find a romantic partner. Dating sites operate by requesting users to compose self-descriptive profiles and then connecting them with databases of potential partners” (Gewirtz-Meydan & Ayalon, 2018, p. 484). The study revealed that there is an intersection between age and gender that translates into the profiles that reveal certain characteristics that will help market the individual’s profiles.

While men focus on the socioeconomic status to attract women, women will focus on sexuality and appearance to attract men (Gewirtz-Meydan & Ayalon, 2018). The implications of employing these tactics to attract older men and women in this sphere proliferates ageism and sexism that does not recognize the normal aging process (Gewirtz-Meydan & Ayalon, 2018). The study reviewed the online dating sites’ for representations of older people, which are matched to those seen in newspaper and magazine ads that focus on anti-aging, who are leading active lifestyles, and maintaining a physical attraction by resorting to cosmetic surgery or pharmaceuticals to remain virile (Gewirtz-Meydan & Ayalon, 2018).

Gewirtz-Meydan and Ayalon (2018) discovered that there was an “agelessness” theme across online profiles that did not depict certain characteristics associated with aging: wrinkles, gray hair, loss of hair, wheelchairs, walkers, glasses (Gewirtz-Meydan & Ayalon, 2018, p. 496). Findings revealed how online profiles of older people only reflected the successful aspects of aging, “which often describes older adults as healthy, active, productive, optimistic, engaged, energetic, adventurous, happy, humor-filled, intellectual, active, and maintaining their relationships with people,” which negates the normal aging process experienced by the majority of older adults, and continuously marginalizes them for not aging successfully (Gewirtz-Meydan & Ayalon, 2018, p. 497). Furthermore, online profile images portrayed older citizens as asexual beings fully dressed or “dressing their age” without demonstrating their unique style or “interest in or desire for sexual activity in old age” (Gewirtz-Meydan & Ayalon, 2018, p. 497). In the intersection of age and gender, Gewirtz-Meydan and Ayalon (2018) ascertained how women are confronted with greater challenges than men, where women who show signs of aging (e.g., wrinkles and gray hair) are viewed as old, compared to men who are seen with younger women and accepted as a cultural social norm (Gewirtz-Meydan & Ayalon, 2018). Thus, resulting in older women tending to be seen more as asexual individuals compared to older men.

### *Young People with Life-limiting or Life-threatening Conditions*

There is limited literature addressing the sexual experiences of young people with life-limiting or life-threatening conditions (LLTCs), if only because they were traditionally not expected to live beyond childhood or their early teenage years. Life-limiting or life-threatening conditions are defined “as diseases with no reasonable hope or cure that will ultimately be fatal” (Fraser et al., 2012, p. 924).

In relation to young people, a life limiting condition refers to both malignant and non-malignant conditions and includes childhood cancers, cystic fibrosis, muscular dystrophies, neurological disorders, and HIV (Hain



& Devins, 2011). Advancements in medical technologies and clinical treatments have meant that children and young people with LLTCs are now no longer dying in their early years but living beyond original expectations into early adulthood and beyond (Beresford & Stuttard, 2014).

What is interesting about this population, other than its relative newness, is the way in which a number of issues culminate, intersecting with one another, and highlight the potential vulnerability of this group in digital, and other, environments: sex as taboo; the taboo of death; the vulnerability of youth; and, vulnerabilities of disabled citizens (Earle and Blackburn, 2020).

Young citizens with LLTCs are vulnerable because they are young and disabled; their life expectancy is also shortened and uncertain. Children are regarded as “incomplete, irrational, unproductive, and asexual whereas adults are seen to be complete, rational, productive, and sexual” (Liddiard & Slater, 2018). Young citizens are at the “border zone” between child and adult and thus particularly vulnerable (Lesko, 2012). Previous research has clearly established the way that disabled people are marginalized and infantilized (Shakespeare et al., 1996). Disabled people, but particularly young disabled people whose lives are limited and uncertain, are perceived as generally vulnerable in many ways. For example, they are seen as at greater risk of abuse, they are sometimes perceived as hypersexual, and are felt to be in need of safeguarding measures (Blackburn, 2018). The potential vulnerabilities of this group further intersect with the taboos of sex and death. Sex has always been regarded, at least in Western cultures, as a “special case” in that it invokes inconsistent attitudes and beliefs (Sontag, 1969). On the one hand, sex is everywhere; It is used to sell things and is highly visible, a core part of the self in the modern world. On the other, sex is sometimes hidden, secret and seen as dirty. Likewise, death can also be regarded as taboo (Walter, 1991). Death is both part of everyday life, as well as something that is feared and hidden away (Fisher, 1973).

Due to the relative newness of this population, limited empirical research exists into their views and experiences generally and even less research exists on issues relating to sexuality and relationships. It is, recognized, however, that young people with complex disabilities and high support needs tend to be socially excluded from mainstream life and are often “shut out” from society (Morris, 2001). An action research study focusing on the views and experiences of young people with LLTCs in the UK on sex, intimacy and relationships identified the importance of this issue for the transition of young people to adult life (Earle and Blackburn, in press). This study draws on the experiences of 16 young adults living with a variety of LLTCs aged between 21 and 33 years. Although sexuality was not always seen—by other people—to be an integral part of their lives, the participants in this study felt that being able to realize romantic and/or sexual relationships was an important

part of becoming an adult. Similar to the experiences of much older people who are often not seen as sexual because of their age, the young people in this respective study resisted sex negative narratives of infantilization which assumed that they were not interested in, or capable of, sexual expression both because they were disabled, and not expected to live. Many participants spoke about needing additional support, either due to physical disability or communication difficulties, to realize their sexual rights and make independent choices, including support with using the internet or other technologies.

Other research in this field has focused more on specific disease-types or conditions, and on the provision of sexual and/or reproductive health services, interventions, sex education, or support. For example, a study by Rydström et al. (2013) explored the experiences of young citizens growing up with HIV in Sweden. Drawing on a qualitative study with 10 young people, the authors highlight the importance of being able to feel in control of one’s life, as well as the need to protect oneself from the risk of stigma. The study by Kazmerski et al. (2016) explores the attitudes, preferences, and experiences of people with cystic fibrosis (and cystic fibrosis providers) toward sexual and reproductive health care for young women in the USA. Twenty-two women were interviewed in this study, which highlighted discomfort and embarrassment in being able to talk about sex, as well as the need for additional resources to support this more effectively. Another study examined the experiences of adolescent and young adult cancer survivors and their views of sexual and romantic relationships (Robertson et al., 2016). Of the 43 participants involved in the interview study, nearly 40% were in a relationship at the time of the interview. The study concludes by arguing that more research is needed to understand the factors that enable healthy relationships in this group.

There is no literature that addresses the use of digital technologies to facilitate dating or any type of intimate sexual relationship in the young adult LLTC population. There is, of course, a growing body of literature that addresses this issue in relation to young people in general. Flug (2016), argues that online dating is popular among young people and part of their everyday culture, offering opportunities for social proximity with anonymity, regardless of the perceived dangers of deception and discrimination. There is evidence that young people use the internet to date, flirt, and hook-up (Lykens et al., 2019).

Most of the research that does exist seems to suggest that—in Western societies—disabled people have more difficulty dating and finding romantic and sexual partners in comparison to their non-disabled peers (Miller et al., 2009). Disabled people have relatively low marriage rates also although this varies according to disability (e.g., see Newman et al., 2011). Disabled people are also less likely to socialize with friends, neighbors and relatives, and young people in school are less likely to

engage in out-of-school social activities (Pfeiffer & Pinguart, 2011). Writing specifically about online dating and disability, Mazur (2016) suggests that online dating offers disabled citizens a quick and convenient way of communicating with multiple potential partners which obviates the need to travel or to meet face-to-face, at least initially. She suggests that it also helps to ensure that initial contact can remain focused off disability although she acknowledges that this then creates the problem of when disability gets disclosed. For young citizens with LLTCs this is further complicated by the fact that—at some point—they may need to tell a partner, or potential partner, that their condition will worsen, and that they are dying. Online dating is therefore—while not without its unique challenges and problems—seen as providing a potential opportunity to improve the dating experiences of disabled people and to increase the chances of engaging in sexual or romantic relationships, including long-term relationships and marriage.

The work positioned in this paper takes a life course perspective, which is a multidisciplinary approach to examining the contextual elements and interplay of one's life over time. This includes family and relationships and decisions that one makes that are grounded in the events that occur over a life time. The life course perspective connects our personal experiences, and historical events that tell the story of our "personal biography" (Elder, 1985). While we have focused specifically on two diverse populations, there are similarities between the two—be it in later life or in adulthood loneliness and social isolation can occur (Marston & Morgan, 2020). However, older adults have had the benefits of exposure to technology (Rosales & Fernández-Ardévol, 2016; Gallistl & Nimrod, 2020; Nimrod & Ivan, 2019; Marston & Samuels, 2019; O'Brien et al., 2012), yet a steeper learning curve than it is for young (disabled) adults (Marston, 2019). For older adults, they too have had to take various transitions in later life, for some, they may have existing knowledge of technology through work or intergenerational relationships (Taipale, 2019). While for other older adults, their knowledge of technology and associated platforms could be less so than their contemporaries, and thus, learning how to use technology, coupled with the creation of a dating app profile and the risks associated to dating apps is greater. Although younger (disabled) citizens have grown-up with technology and social media platforms, given their existing mental models of technology their awareness to the barriers and enablers of technology and associated risks, maybe less so. However, depending upon the young disabled adult, their respective exposure could be on par to that of an older adult particularly given that, in comparison to their non-disabled peers, they are less likely to continue into higher education and training or into (paid) work (Yates & Roulstone, 2013).

The contextual differences surrounding these two diverse populations are the societal impact of experiencing loneliness and social isolation. For example, and

from the standpoint of older adults they may experience social isolation and loneliness due to bereavement of a spouse, grand/children living in different geographic locations (Marston et al., 2019). Yet young disabled people have grown-up been informed that they are vulnerable because of their LLTCs, and with this may heighten their barriers to experiencing dating apps. The notion of life events also provides older adults the opportunity to build meaningful relationships, given their previous experiences in early adulthood. While the young disabled people are likely to have limited knowledge of what a positive and/or negative relationship/friendship is due to the paucity of life experiences and their respective health limiting this affordance. While older adults experiencing pre-existing relationships prior to using dating apps, they have foundations and pre-existing knowledge of how to build a friendship or a relationship.

## Mobile Dating Apps

Contemporary literature has identified the barriers and enablers to using technology in contemporary society (Genoe et al., 2018; Marston & Samuels, 2019; Marston et al., 2019; Vaziri et al., 2016). Interweaving technology into modern-day activities and journeys of citizens forms the smart Age-Friendly ecosystem of the 21st century (Marston & van Hoof, 2019). There is a growing body of research focusing on the use, behavior and impact of dating apps on user's lives. Various types of dating apps and websites are available for people to download and create their profile(s). Table 1 displays the various dating apps and websites available. Since 2007, research has focused on the use of text messaging and talking between users as a way of reducing loneliness (Reid & Reid, 2007), while research specifically focusing on dating apps has focused on privacy issues and the type of data collected by third party companies (Seneviratne et al., 2015).

Dating apps have formed an integral component of daily activity in contemporary society, and for some people, can offer various experiences. Casual sex for many people is perceived as an alternative to a relationship, commitment to a partner and stability. Dating apps such as *Tinder* are perceived by users and researchers alike as a dating app specifically for casual sex, or "hook-ups."

Stinson (2010) and Sevi et al. (2017) explores the factors associated to having casual sex, or, having "friends with benefits"; existing scholarly research has to date explored the use of the dating app *Tinder* to understand user's motivations and perspectives (Timmermans & De Caluwé, 2017). Additional research has focused on the issues surrounding body image (Strubel & Petrie, 2017), social anxiety and the affordability of socially connecting with others (Steven & Morris, 2007), personality-based usage, and motivations of specific factors such as gender, and sexual orientation (Sumter & Vandenbosch, 2019).

**Table 1.** Overview of Various Dating Apps Including the Various Features, Subscription(s), and Additional Features Offered.

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
<p>Badoo 2009</p> <ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> </ul>	Social Networking	30 languages	All	We have a thorough three-step verification process which, once completed, you can choose to only interact with other verified profiles and find friends	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 12.0 or later</li> <li>• Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>• Weekly, monthly, 3-month, and 6-month subscriptions are available.</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• <b>In-app purchases</b></li> <li>• Activate Super Powers—1 month \$9.99</li> <li>• Activate Super Powers—1 month \$13.99</li> <li>• Activate Super Powers—3 months \$24.99</li> <li>• Activate Super Powers—6 months \$39.99</li> <li>• Contacts limit increase \$1.99</li> <li>• Voting limit increase \$1.99</li> <li>• Contacts limit increase \$2.99</li> <li>• Voting limit increase \$2.99</li> <li>• Activate Super Powers—3 months \$18.99</li> <li>• Activate Super Powers—6 months \$29.99</li> <li>• Free to use</li> </ul>	
<p>Bumble</p> <ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	18 languages	<p>“Women make the first move. In heterosexual matches, the woman has 24hr to make the first move and the man has 24hr to respond. In same-sex matches, either person has 24hr to make the first move, while the other individual has 24hr to respond, or else, the connection expires. By prompting our users to be bold and make the first move we’ve seen over 3 billion messages sent to date.”</p>	Not stated	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 12.0 or later</li> <li>• Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>• Weekly, monthly, 3-month, and 6-month subscriptions are available.</li> </ul> <p>“Bumble is the first app of its kind to bring dating, friend-finding, and career-building into a single social networking platform.</p> <p>Bumble Date: On Bumble Date, women make the first move. We’ve changed the archaic rules of the dating game so that you can form meaningful relationships in a respectful way.</p> <p>Bumble BFF: Life is better with friends. Whether you’re new to a city or looking to expand your circle, Bumble BFF is the easiest way to make new friends.</p> <p>Bumble Bizz: Now we’re in business. Use Bumble Bizz to network, find mentors, and create new career opportunities.”</p>	<ul style="list-style-type: none"> <li>• <b>In-app purchases:</b></li> <li>• Bumble Boost £7.99</li> <li>• Bumble Boost £18.99</li> <li>• Bumble Boost £29.99</li> <li>• Bumble Boost £6.99</li> <li>• Bumble Boost £16.49</li> <li>• Bumble Boost £24.99</li> <li>• Bumble Boost £8.99</li> <li>• Bumble Boost £23.99</li> <li>• Bumble Boost £42.99</li> <li>• Bumble Boost £6.99</li> </ul>	
<p>Bistr</p> <ul style="list-style-type: none"> <li>• 17+</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> <li>• Infrequent/Mild Mature/Suggestive Themes</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> <li>• Unrestricted Web Access</li> </ul>	Social networking	English	For people who have beards and for people who like beards	Not stated on Apple store	<p><b>Platforms:</b></p> <ol style="list-style-type: none"> <li>1. Available via iOS 11.0 or later</li> <li>2. Google Play</li> <li>3. Free to use</li> </ol> <p>No In-app purchases/subscriptions</p>		

(continued)

**Table 1. (continued)**

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Coffee Meets Bagel	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	15 languages	All—non specific	Not stated on Apple store	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 11.0 or later</li> <li>• Google Play</li> </ul> <p>“curated matches every day at noon”</p>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• 100 Beans \$1.99</li> <li>• 2,000 Beans \$23.99</li> <li>• 3,000 Beans \$24.99</li> <li>• 9,000 Beans \$49.99</li> <li>• 3,000 beans discounted price \$12.99</li> <li>• 3,000 beans special price \$19.99</li> <li>• Time to TAKE!!! \$0.99</li> <li>• More Beans For Less \$39.99</li> <li>• Halloween Mini Bag \$0.99</li> <li>• Bag of 385 Beans \$0.99</li> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Credit Pack 10 £10.99</li> <li>• Credit Pack 10 £20.99</li> <li>• Credit Pack 40 £36.99</li> <li>• Credit Pack 40 £69.99</li> <li>• Credit Pack 80 £64.99</li> <li>• Membership £8.99</li> <li>• Trial Membership £8.99</li> <li>• Membership £9.49</li> <li>• Trial Membership £9.99</li> <li>• Optional Membership £9.99</li> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Premium £8.99</li> <li>• Chat key £0.99</li> </ul>
Date MyAge	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Unrestricted Web Access</li> <li>• Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> </ul>	Lifestyle	1—English	Adults 40+ years	24/7 customer support checks and verifies every member	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 9.0 or later</li> <li>• Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>• A lot of addons to scale down search. Compatibility questionnaire, search.</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Credit Pack 10 £10.99</li> <li>• Credit Pack 10 £20.99</li> <li>• Credit Pack 40 £36.99</li> <li>• Credit Pack 40 £69.99</li> <li>• Credit Pack 80 £64.99</li> <li>• Membership £8.99</li> <li>• Trial Membership £8.99</li> <li>• Membership £9.49</li> <li>• Trial Membership £9.99</li> <li>• Optional Membership £9.99</li> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Premium £8.99</li> <li>• Chat key £0.99</li> </ul>
Do I Date	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> </ul>	Lifestyle	1—English	No specific audiences	Not stated	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 9.0 or later</li> <li>• Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>• Allows users to leave reviews of people they've dated. To add transparency to online dating. Download via iOS</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Premium £8.99</li> <li>• Chat key £0.99</li> </ul>
eHarmony	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> </ul>	Social networking	1—English	All—non specific	Not stated. On the Apple App store it does state that eHarmony is safe and secure. But no further information is given.	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 12.0 or later</li> <li>• Google Play</li> </ul> <p>Compatibility questionnaire comprising of 149 question</p>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• <b>In-app purchases:</b></li> <li>• Basic £89.99</li> <li>• Basic £139.99</li> <li>• Basic £69.99</li> <li>• Basic £44.99</li> <li>• Basic £22.99</li> <li>• Basic £29.99</li> <li>• Basic £44.99</li> <li>• Basic £104.99</li> <li>• Basic £109.99</li> <li>• Basic £99.99</li> </ul>

(continued)



Table 1. (continued)

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Elitesingels	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> <li>• Frequent/Intense Sexual Content or Nudity</li> </ul>	Social networking	16 Languages	Users are aged between 30 and 50 years	Not stated	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 9.0 and watch 3.0 or later</li> <li>• Google Play</li> </ul> <p>Features available for free:</p> <ul style="list-style-type: none"> <li>▲ Take the personality test</li> <li>▲ Fill in your profile and preferences</li> <li>▲ Get three to seven highly compatible matches daily</li> <li>▲ Get access to your 'matches' complete profile</li> <li>▲ Send smiles and likes</li> <li>▲ Upload Facebook photos directly to your dating profile</li> <li>▲ New, better looking Profile Pages</li> <li>▲ Look through more profiles using our Open Search function</li> <li>▲ Premium features include: <ul style="list-style-type: none"> <li>• See your matches' photos</li> <li>• Send and receive unlimited messages</li> <li>• The Like List: See who you liked—and who liked you!</li> </ul> </li> <li>▲ Who's interested? See who's visited your profile</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• Premium membership is available for 1, 3, or 6 months</li> </ul> <p><b>In-app purchases:</b></p> <ul style="list-style-type: none"> <li>• Mobile Pass S \$22.98</li> <li>• Mobile Pass S \$38.98</li> <li>• Mobile Pass S \$148.98</li> <li>• Mobile Pass S \$88.98</li> <li>• Mobile + Web Pass S \$88.98</li> <li>• Mobile + Web Pass S \$148.98</li> <li>• Mobile + Web Pass S \$218.98</li> <li>• Mobile + Web Pass S \$258.98</li> <li>• GB Mobile Pass S \$66.98</li> <li>• GB Mobile Pass S \$218.98</li> </ul>
Grindr 2009	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> </ul>	Social networking	30 languages	Gay, bi, trans, and queer people	Not stated	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 10.0 or later</li> <li>• Google Play Store</li> </ul> <p>Additional Information: Grindr XTRA subscription features include:</p> <ul style="list-style-type: none"> <li>• No banner ads</li> <li>• See 6× more profiles—up to 600 at once</li> <li>• View only people who are online now</li> <li>• View only profiles with a photo</li> <li>• Unlimited blocks and favorites</li> <li>• Access to all premium filters</li> <li>• Chat easily with saved phrases</li> <li>• Send multiple photos at once</li> </ul> <p>Grindr Unlimited (via one of the auto renewing subscriptions):</p> <ul style="list-style-type: none"> <li>• Unlimited profiles - Always find a fresh face</li> <li>• Viewed Me—See who's checking you out</li> <li>• Incognito—Browse profiles without being seen</li> <li>• Typing Status—Know when someone's messaging you</li> <li>• Unsend—Undo sent messages and photos</li> <li>• All XTRA features</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> </ul> <p><b>In-app purchases:</b></p> <ol style="list-style-type: none"> <li>1. 1 Month \$24.99</li> <li>2. 3 Months \$39.99</li> <li>3. 6 Months \$50.99</li> <li>4. 1 Year \$99.99</li> <li>5. 1 Month + Free Trial \$14.99</li> <li>6. 1 Week \$4.99</li> <li>7. 1 Year \$99.99</li> <li>8. 6 Months \$66.99</li> <li>9. 3 Months \$39.99</li> <li>10. 1 Month, 7 Days FREE \$27.99</li> </ol>

(continued)

**Table I. (continued)**

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Happn	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> </ul>	Lifestyle	20 languages	"[. . .] helps you find all those people you have crossed paths with."	Not stated	<p><b>Platforms:</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 10.3 or later</li> <li>• Google Play</li> </ul> <p><b>Free to use</b></p> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>• \$24.99 for 1 month,</li> <li>• \$89.99 for 6 months</li> <li>• \$119.99 for 12 months</li> </ul> <p><b>In-app purchases:</b></p> <ol style="list-style-type: none"> <li>1. Starter pack—10 Credits\$1.99</li> <li>2. 100 Coins\$16.99</li> <li>3. 60 Coins\$10.99</li> <li>4. 250 Coins\$36.99</li> <li>5. 10 Coins\$2.99</li> <li>6. 30 Coins\$7.99</li> <li>7. 60 Coins\$11.99</li> <li>8. 100 Coins\$18.99</li> <li>9. Starter pack—10 Credits\$2.99</li> <li>10. 60 Coins\$12.99</li> </ol>	
Hater	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> <li>• Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> </ul>	Lifestyle	English	Find someone who hates similar things to you	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 9.0 or later</li> <li>• Google Play Store</li> </ul>	<p><b>Free to use</b></p> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>• Free to use</li> </ul> <p>No In-App purchases/subscriptions</p>
Her	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> </ul>	Lifestyle	Three languages	Lesbian, bisexual, and queer women	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Available via iOS</li> <li>• Google Play Store</li> </ul> <p>Additional features:</p> <ul style="list-style-type: none"> <li>• A mixture of social networking—able to read the news and search for potential partners</li> </ul> <p>Upgrading/premium: There are options to upgrade—but limited information to users relating to the benefits of upgrading.</p> <p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Available via iOS</li> <li>• Google Play Store</li> </ul> <p>Upgrading/premium: There are options to upgrade—but limited information to users relating to the benefits of upgrading.</p>	<p><b>Free to use</b></p> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>• Her Premium: <ul style="list-style-type: none"> <li>◦ 1 Month: starting at \$14.99</li> <li>◦ 6 Months: starting at \$59.99</li> <li>◦ 12 Months: starting at \$89.99</li> </ul> </li> </ul>
Hinge	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> <li>• Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> </ul>	Lifestyle	English	All—non specific	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Available via iOS 10.0 or later</li> <li>• Google Play</li> </ul> <p>Upgrading/premium: "Members looking to see who likes them or to set advanced preferences can upgrade to a Preferred Membership"</p>	<p><b>Free to use—can upgrade to gain additional benefits (e.g., users who like your profile)</b></p> <ul style="list-style-type: none"> <li>• Hinge Subscription</li> <li>• Hinge Membership</li> </ul>

(continued)

Table 1. (continued)

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Lovestruck	<ul style="list-style-type: none"> <li>17+</li> <li>Infrequent/Mild Profanity or Crude Humor</li> <li>Frequent/Intense Mature/Suggestive Themes</li> <li>Infrequent/Mild Sexual Content and Nudity</li> </ul>	Social Networking	Four languages	All—non specific	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Available via iOS 10.0 or later</li> <li>Google Play</li> </ul> <p>Upgrading/premium:</p> <ul style="list-style-type: none"> <li>Offers one to one dating advice via the Premium matchmaking service</li> <li>For additional costs, there are networking/events with other members.</li> </ul>	<p>Membership starts at £39 per month or £11.98 when subscribing for 12 months.</p> <p>In-App purchases:</p> <ol style="list-style-type: none"> <li>Gold 1 months</li> <li>Silver 1 months</li> <li>Silver 6 months</li> <li>Silver 12 months</li> <li>Gold 6 months</li> <li>Gold 12 months</li> </ol> <p>Free to use</p> <p><b>Subscription:</b></p> <ul style="list-style-type: none"> <li>Premium—no additional information given.</li> </ul>
Lumen	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	12 languages	Adults aged 50+ years	<p>On the Apple App page: "We want you to form genuine connections with real people, and so every person on our app is verified"</p>	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Available via iOS 9.0 or later—&amp; compatible with various platforms</li> <li>Google Play</li> </ul> <p>Upgrading/premium:</p> <p>"being able to start 6 chats a day instead of 3 and restarting the clock on your favorite chats."</p> <p>No additional information given</p>	<p>Free to use</p> <p><b>Subscription:</b></p> <ul style="list-style-type: none"> <li>Premium—no additional information given.</li> </ul>
Match.com	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	11 languages	All	Nothing stated apart from "verified profiles"	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Available via iOS 10.0 or later</li> <li>Google Play</li> </ul>	<p>Free to use</p> <p><b>Subscription:</b></p> <ol style="list-style-type: none"> <li>1 month for £29.99</li> <li>3 months for £59.99</li> <li>6 months for £59.99</li> </ol>
Muzmatch	<ul style="list-style-type: none"> <li>17+</li> <li>Unrestricted Web Access</li> </ul>	Lifestyle	14 languages	For muslims	<p>Option to keep photos blurred until the user has matched with the user</p> <p>Verification: via mobile phone and a selfie</p>	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Available via iOS 10.2 or later</li> <li>Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>A Wali or Chaperone can be included into the chats</li> </ul>	<p>Free to use</p> <p><b>Subscription:</b></p> <ol style="list-style-type: none"> <li>Premium</li> <li>Premium</li> <li>1 Instant Chat</li> <li>5 Instant Chats</li> <li>10 Instant Chats</li> <li>Gold</li> </ol>
Raya	<ul style="list-style-type: none"> <li>17+</li> <li>Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> <li>Infrequent/Mild Sexual Content and Nudity</li> <li>Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	One language (English)	"Raya is a private, membership-based club where members can connect for dating, networking, or to find new friends"	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 11.0 or later</li> <li>Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>Accepted members will have the option to purchase 1 or 6 month, auto-renewing memberships</li> </ul>	<p>Free to use</p> <p><b>Subscription:</b></p> <ul style="list-style-type: none"> <li>Membership</li> <li>Membership</li> <li>Membership</li> <li>30 Extra Likes</li> <li>1 Direct Request</li> <li>12 Direct Requests</li> <li>5 Direct Requests</li> <li>Membership</li> <li>Fast Forward</li> </ul>

(continued)

**Table 1. (continued)**

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Salt 2018	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> </ul>	Social Networking	One language (English)	For Christians to date fellow Christians—all denominations	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 9.0 or later</li> <li>Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>Subscribing to premium gives extra access to features</li> <li>weekly, monthly, 3 month, and 12 month subscriptions</li> </ul> <p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 10.0 or later</li> <li>Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>Match based on music preferences</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> </ul> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>1 month £15.99</li> <li>3 month £31.99</li> <li>weekly £8.99</li> <li>12 month £71.99</li> </ul>
Tastebuds	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> </ul>	Lifestyle	One language (English)	To meet people into music	Not stated	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 9.1.0 and watch iOS 4.0 or later</li> <li>Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>Match based on music preferences</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> </ul>
The Inner Circle	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> <li>Infrequent/Mild Sexual Content and Nudity</li> <li>Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> <li>Infrequent/Mild Profanity or Crude Humor</li> </ul>	Lifestyle	One language (English)	“[. . .] encourages ambitious people to get together and meet their online matches in real life, because that’s when sparks fly.”	No specific information about verification. Except for: “We screen people to make sure our members are real people who are serious about dating and not playing games. It’s also our way of providing you with a safe environment that’s full of people you would actually like to go on a date with.”	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 9.1.0 and watch iOS 4.0 or later</li> <li>Google Play</li> </ul> <p>Upgrading/premium:</p> <ul style="list-style-type: none"> <li>“[. . .] monthly, 3 months, and 6 months subscriptions giving discounts to the monthly price.”</li> <li>“Full Membership you have complete access to all your Matches, Winks and Messages.”</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> </ul> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>Full Membership \$19.99</li> <li>Full Membership \$39.99</li> <li>Full Membership \$59.99</li> <li>Full Membership \$19.99</li> <li>Full Membership Premium \$39.99</li> <li>Full Membership Premium \$79.99</li> <li>Full Membership Premium \$119.99</li> <li>Full Membership Premium \$39.99</li> <li>VIP Full Membership \$59.99</li> <li>VIP Full Membership \$119.99</li> </ul>
The League: Date Intelligently	<ul style="list-style-type: none"> <li>17+</li> <li>Frequent/Intense Mature/Suggestive Themes</li> <li>Infrequent/Mild Alcohol, Tobacco, or Drug Use or References</li> <li>Infrequent/Mild Sexual Content and Nudity</li> </ul>	Lifestyle	One language (English)	Aimed at young, successful individuals <ul style="list-style-type: none"> <li>Aged between 24 and 36 years</li> <li>Users work in professions such as: finance, technology, consulting, and fashion</li> </ul>	No specific information about verification.	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>Requires iOS 9.0 or later</li> <li>Google Play</li> </ul> <p>Upgrade/subscription:</p> <ul style="list-style-type: none"> <li>“Membership will last for 1 month, 6 months, or 12 months</li> <li>League users now have the option of becoming members by purchasing several subscription options. Membership offers extra perks, customization, more prospects and invites to exclusive events.”</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> </ul> <p><b>Subscriptions:</b></p> <ul style="list-style-type: none"> <li>League Monthly Dues. £14.99</li> <li>Profile Boost: £23.99</li> <li>League Time Out £0.99</li> <li>Additional Prospects £9.99</li> <li>5 League Tickets £23.99</li> <li>League Ticket: Male £0.99</li> <li>League Ticket: Female £0.99</li> <li>League Subscription (Pilot Price) £109.99</li> <li>Member Dues (Bi-Annual) £179.99</li> <li>Annual Dues £139.99</li> </ul>

(continued)

**Table I. (continued)**

Dating app, launch date	Age rating	App category	Language(s)	Target audience	Verification	Miscellaneous	Membership £ and/or in app purchases
Tinder	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Infrequent/Mild Sexual Content and Nudity</li> </ul>	Lifestyle	44 languages	All	No specific information about verification.	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Requires iOS 9.0 or later</li> <li>• Google Play</li> <li>• Upgrade/subscription:</li> <li>• "Tinder Plus® for premium features, including unlimited likes, so you can use the Swipe Right feature to your heart's content; Passport to chat with singles anywhere around the world; Rewind to give someone a second chance; one free Boost per month to be the top profile in your area for 30min; and additional Super Likes to stand out from the crowd."</li> <li>• "Tinder Gold™ for a first-class experience: Passport, Rewind, unlimited likes, five Super Likes per day, one Boost per month, and more profile controls. But wait: it gets better. Save time and aimless searching with our Likes You feature, which lets you see who likes you. Think of it as your personal Tinder concierge—available 24/7—bringing all of your pending matches to you."</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• Tinder Plus£0.79</li> <li>• Tinder Plus£1.49</li> <li>• Tinder Plus£2.29</li> <li>• Tinder Plus£3.99</li> <li>• Tinder Plus£4.99</li> <li>• Tinder Plus£5.99</li> <li>• Tinder Plus£7.99</li> <li>• Tinder Plus£10.99</li> <li>• Tinder Plus£14.99</li> <li>• Tinder Plus£1.49</li> </ul> <p><b>Subscriptions:</b></p>
Transdr	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> </ul>	Social Networking	English Is available in cities across the US, UK, Australia, and Canada	Aimed at transsexual, transvestite and transgender	<p>On the site, Point 4 is titled as "For its' healthy and safe"</p> <p>"To ensure every member connects with the right trans person, we verify every profile, photo and moments manually as well as monitor every suspicious activity. We make efforts to kick out fake profiles, scammers, unhealthy factors, etc.</p>	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Requires iOS 8.0 or later</li> <li>• Google Play</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• 1-month subscription with auto renewal: \$14.99</li> <li>• 3-month subscription with auto renewal: \$29.99</li> <li>• 6-month subscription: \$49.99</li> <li>• On the website, it notes that subscription prices may vary from country to country.</li> </ul> <p><b>Subscription</b></p>
Butterfly	<ul style="list-style-type: none"> <li>• 17+</li> <li>• Frequent/Intense Mature/Suggestive Themes</li> <li>• Frequent/Intense Sexual Content or Nudity</li> <li>• Infrequent/Mild Profanity or Crude Humor</li> </ul>	Lifestyle	English	Aimed at: Cisgender, Agender, Androgynous, Bigender, FTM, Gender Fluid, Gender Nonconforming, Gender Questioning, Gender Variant, Genderqueer, Intersex, MTF, Pangender, Transgender, Transgender Female, Transgender Male, Transgender Person, Transsexual, Transsexual Female, Transsexual Male, Transsexual Person, and Two-Spirit.	No information provided about verification.	<p><b>Platforms</b></p> <ul style="list-style-type: none"> <li>• Requires iOS 11.0 or later</li> <li>• Google Play</li> </ul> <p>Additional information:</p> <ul style="list-style-type: none"> <li>• Private messages are deleted after 30 days</li> <li>• Location data is an approximate (do not reveal the exact location)</li> <li>• VIP subscription offers unlimited messages—locally and internationally</li> </ul>	<ul style="list-style-type: none"> <li>• Free to use</li> <li>• In-app purchases:</li> <li>• VIP Access\$7.49</li> <li>• VIP Access\$10.99</li> <li>• VIP Access\$19.49</li> <li>• VIP Access\$26.49</li> </ul>

Note. All information was taken from the Apple App store between 13th and 17th February 2020. An additional update was conducted on the 12th May 2020, adding Transdr and Butterfly information to the table. The pricing information was taken directly from the Apple App store.



## Enablers to Using Dating Apps

### *Social Connectedness*

Dating apps offer opportunities for all users to experience intimacy and potentially find love, in either a relationship or a short-term partnership, a “friend with benefits” agreement or a polyamorous relationship. In addition, they offer citizens the chance to enhance and increase their social connections and potentially reduce loneliness.

Dating apps vary in their design, interface, initial engagement, monetization, user’s expectations, needs, and experiences. For many users of dating Apps, they may arrange to go on a date(s) and realize that there is no physical or sexual connection(s), but a connection that facilitates a potential friendship, which in turn is reciprocal.

### *Sexual Engagement and Intimacy*

Many citizens simply want to engage in sexual activity, physical and emotional intimacy which is afforded by dating apps. User’s profiles can state exactly what they are looking for (e.g., no commitment, fetishes etc.) and this informs users of respective intentions. However, if a profile is not clear initial communication may inform the true intention of that specific user(s). Dating app users’ have no restrictions on their use and access, and whether a user is a widow, divorcee or a (young) person with a disability or a LLTC the opportunities in this sphere are exponential; from companionship, friendship, to intimacy, and/or experimentation (e.g., sexuality, fetishes etc.) (Rose & Hawkins, 2015).

### *Relationship and Marriage*

For seeking commitment and possibly a partnership/marriage, dating apps provide an environment whereby some users who have been seeking this type of commitment maybe fortunate to find someone (Vincent, 2019). Dating apps tend to set the radius of finding a match between 5 and 50 miles (and possibly further), and based on GPS tracking, if one is to travel across the country or abroad, the dating app will start to present profiles matching your preferences (Morgan, 2019a).

## Challenges to Using Dating Apps

### *Fraud and Behavior*

Since the conception of dating apps, there has been a growth in urban language deriving from the various behaviors conducted and experienced by users of these apps (Cliff, 2019; Mazza, 2019a). A common term is “catfishing”, or to be catfished, is a term used to describe a person who pretends to be someone else (Mazza, 2019b). Another popular term is “ghosting” and describes a user who ceases all contact with another user unexpectedly, and usually includes blocking that person

from all communication platforms, and “unmatching” from the dating app.

Some dating apps request the user who is creating the profile to verify who they are. This can involve taking a photograph of themselves and once verified an icon (e.g., a blue tick or similar) is displayed on the profile to indicate to other users that it is a legitimate account (Fox, 2019). Given how this is becoming a problem for the dating app industry, artificial intelligence (AI) (Randall, 2020) is being used to check all profiles are legitimate. Table 1 illustrates how various dating apps (Heathman, 2019) provide users with the option to verify their account. This functionality reduces the risk/experiences of been “Catfished”. Although in some cases well-known television presenters (Richardson, 2019) or journalists (Platell, 2020) can have their photographs used as a means of “catfishing” by scammers/fraudsters who wish to cheat an individual or several users. Dating apps offer users the option to pay a subscription fee which in turn offers the user greater functionality (e.g., send/receive messages, see profiles who like you) and in some instances “coins or tokens” can be bought to allow the user to gain extra information.

With many dating apps once a match has occurred the two users start to engage in communication and sharing messages. In apps such as Bumble, women initiate the first bit of communication (via a message), and then the recipient has 24 hours to respond, which then allows the two to continue communication. Across all dating apps, communication can change rather quickly from light-hearted to sexual preferences, needs, offers, and even sharing imagery. For less experienced, or novice users of dating apps, such communication and conversations may be very unwelcome, uncomfortable and insulting.

### *(Sexual) Behavior, Attacks, and Self-confidence*

Within this sphere, initial communication and decision making is conducted purely on visual appearance (Ryan, 2016; Sykes, 2014). For users who may perceive themselves as ugly and receiving little or no attention within this sphere, this can have detrimental effects on one’s self confidence and mental health (MH). In some cases, this may result in seeking/receiving professional treatment because of their experience (Kekatos, 2019).

Body shaming, a form of bullying can be experienced by users (Johnston, 2019a). This can be particularly pertinent if a user is engaging in communication with another user, arranges to meet for a date, coffee, cinema etc. and then the other user “Ghosts” that user. In some instances, users may receive aggressive tones and insults about their physical appearance (Williams, 2019), or poor behavior from the other person for no apparent reason (Toureille, 2020), because one party does not like a particular leisure activity of the other person, or because one of the users has traits which could be perceived as controlling (Johnston, 2019b). Users in Australia who

deem lying to be ok to their prospective date, with a view to engaging in sexual activity may see themselves charged with sexual assault (Barron, 2019). In a recent case in the UK an NHS consultant was charged and tried in court for lying to his date, claiming that he had used a condom prior to sexual intercourse occurring; but the consultant had to contact the woman to inform her of a sexually transmitted disease, which in turn led to his lie being exposed (Ward, 2020).

Given the availability of various dating apps which cover various sexual appetites, preferences, and fetishes (Pleasance, 2019) and include the Whiplr (2020) app. Whiplr (2020) facilitates a diverse community, comprising of different sexualities, levels of experiences, transgender, doms, submissives, masters, and slaves. The recent murder of a young British backpacker in New Zealand illustrates the dangers of dating apps, but also the menu of such apps for sexual appetites. It has been mooted in the British media that the victim met her attacker through specific dating apps aimed at individuals who were interested in fetish and BDSM, although both parties had Tinder profiles too (D'Antal, 2019a, 2019b, 2019c). Another example of threatening behavior and intimidation involved a woman who met her boyfriend via Plenty of Fish, who then threatened to petrol bomb her flat he was subsequently jailed (Gant, 2019).

Finally, for some users of dating apps, their gender and sexuality may also impact on their experience(s) and pose as a risk. For example, users who are transgender(ed) or non-binary, could be at a greater risk from been bullied and/or abused, the users' self-confidence could be at risk, if they encounter prejudice, or viewing derogatory terms/comments via the respective app(s) or in-app advertisements. (Glass, 2018). Furthermore, one media article reports on the development of "Butterfly" an app developed solely for members of the trans and non-binary communities:

"[. . .] trans daters on his other apps had a different set of concerns which weren't being accounted or accommodated for in the slightest." (PAPER, 2019).

Additionally, Butterfly, is available in 26 countries, inclusive of 24 gender types and 10 sexuality preferences, enabling users to select appropriately (PAPER, 2019). While, the privacy of its users is paramount, and over a period of 30-days, any images, conversations shared between two users, during this period are automatically erased from the servers and devices after 30-days. Furthermore, users have the opportunity to request every piece of their data via the app settings function, while user locations are approximated, which in turn means their exact location is not visible. Unlike other dating apps, users of the Butterfly app are not required to input their date of birth, upload a photograph and they do not have to connect their social media account(s). User's are only required to provide their age and an email address.

### *Privacy Data Theft and Financial Fraud*

In a digital society, the privacy of citizens is critical to ensure all personal data is kept secure. Privacy breaches have been occurring with the Plenty Of Fish app (Liberatore, 2019) which resulted in postal codes being released and the exact location of persons been disclosed. Additionally, 70,000 photos of users on Tinder were hacked (Wynn, 2020), raising the possibility that these photos could be deployed into, and across different dating apps to commit catfishing and possible criminal activity on unsuspecting users. Dating apps such as Grindr, Romeo, Recon, and 3Fun have recently been hacked, resulting in the users' data being stolen and made available (Tingle, 2019).

Grindr, Tinder, Happn, Muslim Qibla Finder, and OkCupid are sharing users' personal information (e.g., sexuality, IP address, gender, age, drug use, and location) with advertising companies/partners (Fruen, 2020) without the knowledge of the users. The Norwegian Consumer Council have been conducting additional sharing activities with associated companies of the Match Group, which is the owner of the Match.com dating website and app (Fruen, 2020; Norwegian Consumer Council, 2020). In 2015, the Ashley Madison (Badham, 2015) online infidelity website, (Zetter, 2015), was hacked resulting in swathes of data been stolen and posted on to the dark web. The 3Fun app, aimed at individuals interested in threesomes has encountered data breaches, resulting in personal information and location coordinates being leaked (MacDonald, 2019). Fraud has occurred with female users across various age groups and users of dating apps, under the premise of love, false promises made and lies been told, resulting in money being illegally transferred to gangs or citizens; while the health, well-being, and self-confidence of all these women being negatively affected (Carr, 2019; Kekatos, 2019; Morgan, 2019b).

The risks highlighted in this section can impact both older (Shaw, 2020; Age UK, 2020) adults and young disabled people with LLTCs, but possibly in various degrees. For example, older users of dating apps, who maybe recently divorced, widowed or who are feeling lonely coupled with little knowledge or experience of dating app behavior and etiquette could be at a greater risk of fraud (Shaw, 2020; Age UK, 2020) and associated behavior such as catfishing. The risk of financial theft is likely to be greater experienced by older users (Shaw, 2020; Age UK, 2020), who may have accumulated a level of financial comfort through their employment, pensions, and possibly investments.

Privacy theft is one of the risks associated to young disabled adults using dating apps. For example, the young person could be coerced into sharing private details to the user (a criminal gang), which in turn could use this new information to hack their accounts or create fake profiles. Self-confidence and bullying are a risk for this specific population. For example, a young person

maybe engaging with a “user” and images could be shared, once the user has gained the confidence and trust of the young person, and from the photos been shared, the user maybe negative toward them because of their LLTC. Finally, (sexual) behavior is a risk that young disabled adults could be exposed to, by users who have specific fetishes and kinks who are seeking specific sexual encounters (e.g., one-night stand), rather than forming a meaningful relationship.

The activity of catfishing is a risk to both diverse populations because users from both populations are likely to be seeking a form of sexual connection, social connectedness and/or relationship(s). However, criminal gangs may have choose to put the time into a specific profile, initially with the intention of catfishing, but also use this as a way to garnered additional information (e.g., bank details, money, etc.).

## Future Work

This position paper has narrated the growing increase of dating apps and websites used by various age cohorts within society. Although there has been great media interest, generally reporting female users who have fallen victim to crimes, heartbreak, shame, and embarrassment among their friends and family, what is not so clear is the challenges and enablers of dating apps by men.

There are many dangers associated to using dating apps which have been noted through the British media press, and for all users of such apps been vigilant and mindful is important. However, for potentially vulnerable populations such as older adults and young disabled people with life-limiting/life-threatening conditions, being extra vigilant is key, given their various and respective differences and experiences. This paper has highlighted breaches of data sharing by various apps, which in some instances are breaking the GDPR legislation set across European Union Member States. Greater work is needed to explore and understand user engagement, experiences, needs and barriers to using dating apps, which for many users could be a pivotal lifeline of contact with the outside world, or for instigating an intimate relationship.

The existing scholarly work in this field has, to-date, focused on young citizens, engaging with Tinder or Grindr dating apps. We propose further work is needed to understand the social, behavioral, and user experiences (UX) of dating apps by adults aged 50+ years as well as younger disabled people with LLTCs. With this notion of taking a UX approach, this paper lays the foundations to expand and conduct additional research focusing on the UX behavior of dating apps by both older adults and young disabled adults with life-limiting and life-threatening conditions. One option for expanding this work is to conduct a “walkthrough” approach (Light et al., 2018) study which in turn would provide insights into prospective usability and accessibility issues and experiences, the overall user experience and

potentially identify features that can be updated. Furthermore, this approach will provide industry developers the opportunity to understand the UX from the standpoint of these two specific populations, and to understand their needs, requirements, expectations, concerns, potential risks, and experiences.

Finally, we propose the notion of a classification system similar to that used in the videogame (Marston & Smith, 2013) and movie industries whereby, citizens in this smart Age-Friendly ecosystem (Marston & van Hoof, 2019) of the 21st century can review dating apps based on a myriad of factors (e.g., verification, authenticity, successfulness etc.). Furthermore, owners, developers, and policy makers also have a broader social responsibility, given the current experiences of users of criminality and violent behaviors of individual users, as well as organized criminal gangs. For national and international legislation to be successfully enforced will require a taskforce(s) of stakeholders and actors to work through the various pathways to ensure the safety of citizens in the future.

## Conclusion

This paper has focused on two specific cohorts’ primarily from a UK perspective who have the opportunity to engage with dating apps. We believe this narrative offers significant contributions to the fields of gerontology and disability by garnering insightful knowledge associated with social connectedness and loneliness, while also contributing to the field of sexuality, through understanding the needs and issues surrounding sex, intimacy and relationships within these two different populations.

Currently, there is little information concerning UX, design and engagement of dating apps by gerontechnologists interested in older people and younger (disabled) people. The narrative presented here illustrates how technology intersects across society, health, and wellbeing across the lifecourse; illustrating loneliness and social isolation is not solely an issue for older citizens.

This review has implications for national and international policy from the standpoint of legislation and to ensure there is greater collaboration between industry, academe, law enforcement and policy makers in a bid to ensure the negative practices detailed here are acted upon and offer support to victims of criminal behavior (e.g., financial fraud, sexual/assault). Additional policy implications in conjunction with a classification system, has the potential to work toward passing legislations in the UK Parliament relating to catfishing in addition to additional risks which have been outlined in this paper. In 2019, the Voyeurism (offenses) (No.2) Act 2019 (UK Parliament, 2019)—was passed and relates to acts of “upskirting”, and while this is traumatic for the respective victim(s), so is the act of catfishing, privacy and financial theft, and fraud. For many individuals using dating apps, they are vulnerable, potentially lack self-confidence, and are seeking companionship. The myriad



of risks and negative behaviors conducted on dating apps, do not happen over a couple of nights. The individuals and criminal gangs invest a lot of time in their respective victim(s) with the hope that playing the long-game will reap rewards (e.g., financial or data). For the victim, there is the emotional and mental health implications that should be considered.

Given how there is a dearth in policies and legislation relating to dating apps is stark and worrisome. We have seen in the stories published by the UK media the various criminal acts, including the murder of the young British woman in New Zealand in 2019 (D'Antal, 2019a, 2019b, 2019c). Yet, be-it the industry, government, or law enforcement are not calling for a classification system or legislation to be considered for dating apps to be brought into line with other criminal behavior.

A multi-actor (i.e., law enforcement, mental health organizations, policy makers, industry, academe, and users/victims) approach is needed to tackle such behavior and to integrate legislations, via a co-production approach, coupled with the need for dating apps/developers to take account for negative behavior within their respective app.

As is clear, societal notions of love and connections have changed over time, technology reminds us that there is indeed a perfect storm brewing that requires us all to pay attention.

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