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The Virtual Care Farm: A Preliminary Evaluation of an Innovative Approach to Addressing Loneliness and Building Community through Nature and Technology

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ABSTRACT

Social relationships and engagement are critically important to well-being in later life and have been found to be strongly correlated with isolation and loneliness. Addressing loneliness has emerged in recent years as a grand challenge for our health and social care systems. In this article, the author introduces, describes, and provides a preliminary evaluation of the “virtual care farm” – an innovative union of high-technology online communities and low-technology care farms. Preliminary evaluation suggests that connecting older adults with nature and older adults with each other have the potential to facilitate social engagement, foster relationships, and address loneliness and isolation.

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Introduction

Social relationships are essential to our well-being and provide connections that help ward off feelings of loneliness. Loneliness is defined as the subjective “discrepancy between one’s desired and achieved levels of social relations” (Perlman & Peplau, 1981, p. 31) and has been labeled “the next smoking” in terms of its corrosive effects on health and well-being (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). For older adults, in particular, loneliness can compromise physical and emotional well-being and functional ability (Courtin & Knapp, 2017; Ong, Uchino, & Wethington, 2016; Shankar, McMunn, Demakakos, Hamer, & Steptoe, 2017). Loneliness has also been linked with increased healthcare costs and greater risk of mortality in older adults (Gerst-Emerson & Jayawardhana, 2015; Holt-Lunstad et al., 2015; Luo, Hawkey, Waite, & Cacioppo, 2012). A number of interventions have been developed to address loneliness, including in-person social group activities and clubs, therapeutic interventions (e.g., reminiscence groups), and befriending interventions (e.g., senior companion programs). Reviews of these approaches have yielded mixed results in terms of addressing loneliness and additional research is needed to develop and

evaluate creative approaches to building relationships and community among older adults (Coll-Planas et al., 2016; Garcia-Llorente, Rubio-Oliver, & Gutierrez-Briceno, 2018). In this article, the author introduces, describes, and provides a preliminary evaluation of an innovative new approach to building community and addressing loneliness – the “virtual care farm”.

Online communities for older adults

Over the past several decades, technology has emerged as an integral tool in the way that we interact and connect with each other. While slower than younger age groups, older adults have begun to embrace digital technology and a growing number of older adults are now “connected”. For example, the Pew Research Center reports that 67% of older adults currently use the internet, up from 14% in 2000 (Anderson & Perrin, 2017). Much like other age groups, older adults use the internet to communicate, to obtain information, for entertainment and shopping, and to stay connected to family and friends. A growing percentage (34%) of older adults use online social media and belong to online communities, such as Facebook or Twitter (Anderson & Perrin, 2017).

Social networking can be beneficial across age groups, providing social support, offering opportunities to support others, and enhancing feelings of social inclusion. For older adults, research has demonstrated that online social networks can fill voids in social support and socialization and reduce feelings of loneliness and social isolation (Leist, 2013; Quan-Haase, Mo, & Wellman, 2017). There are also indications that online social networking can also provide cognitive benefits for older adults, particularly in terms of working memory (Myhre, Mehl, & Glisky, 2017). These findings are especially promising for older adults who may have limitations (e.g., physical disabilities, financial challenges) that restrict their participation in traditional social networking and engagement.

Online communities appear to have promise for enhancing well-being in older adults, however the research on this age group lags behind that of younger cohorts. A recent literature review and meta-synthesis examining the link between internet use and mental health in older adults identified only 32 studies that focused on this topic. Analyses of the studies confirmed the benefits discussed earlier, including positive associations between internet use and mental health and psychosocial well-being and enhanced social connectedness and feeling of social inclusion (Forsman & Nordmyr, 2017). The fact that only 32 studies focused on this topic indicates that our understanding of online communities for older adults is still in its infancy. This is confirmed in a later systematic review of technological interventions to address loneliness in older adults. These authors were only able to identify 36 empirical studies that focused on this topic, the majority of which were small-scale, qualitative studies. The authors again note the potential benefits

but caution that there is not enough evidence to make causal statements about online communities and psychosocial well-being in older adults (Baker et al., 2018). The term “only” is used when discussing the number of studies (32 and 36, respectively) included in these systematic reviews. This is a relatively small body of research in comparison to the hundreds and, indeed, thousands of studies and publications focusing on online communities for other groups (e.g., adolescents). Online communities may be a way to bring older adults together, however additional research is necessary to fully understand the benefits and challenges of this approach. As cohorts of older adults become more familiar with technology, we may see an increase in the use and importance of online communities in fostering social connectedness.

Care farms

Shifting from “high-tech” to “low-tech”, care farms are actual working farms that groups of older adults (and in some cases, younger adults with disabilities) visit one or two days a week to engage in “farm life”. Care farms are viewed as alternative or complementary approaches to traditional institutional day care models (e.g., adult day services, sheltered workshops). Activities on care farms include caring for animals and livestock, planting and harvesting crops, selling food at farmers’ markets, engaging in craftwork (e.g., dyeing yarn), exploring the natural environment, and preparing and sharing family-style lunches. Importantly, most care farm activities occur in groups with the goal of building community and enhancing feelings of social inclusion and belongingness (de Bruin, Oosting, van der Zijpp, Enders-Slegers, & Schols, 2010a; Hassink, Elings, Zweekhorst, van den Nieuwenhuizen, & Smit, 2010).

There are indications that this approach can have a positive impact on well-being. Researchers have found that care farms can provide structure to participants’ lives, promote social interaction, decrease feelings of loneliness, increase social esteem, and provide opportunities for exercise (Elings, 2011; Elings & Hassink, 2008; Iancu, Zweekhorst, Veltman, van Balkom, & Bunders, 2013). Studies focusing on older adults with dementia found that participation in care farms can reduce behavioral problems, improve dietary intake, and enhance feelings of well-being and social inclusion (de Bruin et al., 2010b, 2010a, 2015; Milligan, Gatrell, & Bingley, 2004; Rappe, Kivelä, & Rita, 2006; Schols & van der Schriek-van Meel, 2006). In a recent study evaluating care farms in the United States (US), researchers found that care farms are feasible within the health care system and that participants reported enhanced feelings of camaraderie, social engagement, and inclusion (Anderson, Chapin, Reimer, & Siffri, 2017). Care farms appear to have a unique ability to bring people together, particularly those with physical and/or cognitive limitations, and to build community and reduce loneliness through nature.

While care farms may have the potential to address loneliness in older adults, existing research is quite limited. A recent systematic review, for example, identified only 98 academic articles reporting on quantitative studies of care farms in Europe. The vast majority of these articles were published in the last 15 years and only a fraction focused on older adults. The authors note many of the benefits of care farms discussed earlier, but also noted that “despite the advances in research publications, the potential of green care is still poorly understood” (Garcia-Llorente et al., 2018, p. 13). Another review article that included evaluations of care farming in the United States also found a wide range of benefits for various groups, including older adults. These authors also noted the lack of rigorous evaluation and the fact that the evidence of efficacy and effectiveness of care farms in Europe may not translate easily to the culture and healthcare system in the United States (Artz & Davis, 2017). Again, this is not to say that care farms are not potentially beneficial for older adults in the United States; rather it reminds us that research has yet to confirm this potential.

The “virtual care farm”

The virtual care farm is a marriage of online communities and the care farm concept. In this section, the virtual care farm is introduced and a preliminary evaluation is presented. Dunrovin Ranch is a small guest ranch operating on 500 acres of private, leased, and permitted land straddling the Bitterroot River in Lolo, a small rural town in Northwestern Montana. In 2011, researchers from the University of Montana installed a web camera on Dunrovin Ranch as part of project to monitor the activities and nesting behaviors of ospreys. Within two years, the web camera became part of Cornell University’s *All About Birds* website and brought in over 750,000 unique viewers. At the end of the 2012 breeding season, the owners of Dunrovin Ranch decided to turn off the web camera; however, scores of viewers requested that the cameras remain active so they could watch ranch activities over the winter. This prompted the owners of Dunrovin Ranch to develop an online platform to continue and expand the online program and to facilitate interactions between users. Days@Dunrovin (D@D), a virtual care farm, emerged from these efforts.

D@D is a subscription based (\$8 per month with a sliding scale fee for lower income individuals), content-driven, social media platform that captures life at Dunrovin Ranch. D@D still operates and hosts the osprey cameras, but now offers an exclusive “cyber front porch” consisting of additional web cameras and a professional audio system. Members are able to view all of the ranch operations and, equally important, engage with each other through technology and shared experiences. D@D provides a wide range of content through a secure website portal, including live webcam

broadcasts of ranch activities, a monthly magazine on the ranch, blogs and videos by ranch staff and D@D members, photo galleries of ranch life, and online interviews with and demonstrations by experts, authors, and storytellers. There is also an intergenerational component to D@D in which members can interact with school children who are learning about wildlife through the live web cameras (for more on Dunrovin Ranch and D@D, see <http://dunrovinranchmontana.com> and <https://daysatdunrovin.com/>).

Preliminary evaluation of the virtual care farm

At the time of this preliminary evaluation, D@D had 163 members hailing from across the US and abroad. Specifically, 82% of D@D members reside in the US, 15% reside in Canada, and 3% reside in Europe and Australia. Interestingly, only 2% of D@D members reside in Montana. In terms of demographics, D@D members are primarily women (95%), age 60 and older (60%), and college graduates (64%). Almost half of D@D members live with their spouse (48%), while almost one-third live alone (29%). Employment status is divided equally between retired (42%) and employed, either full-time (36%) or part-time (6%). Members access the D@D site on a variety of devices, including desktop computers (56%), laptop computers (54%), tablets (21%), and cell phones (7%). The vast majority of members (75%) reported that they engage with D@D nearly every day.

D@D appears to have the ability to serve many of the same purposes of actual care farms, such as providing opportunities to connect with nature, facilitating new learning experiences, fostering social inclusion, and building community. Preliminary evaluation of qualitative data provide some insight into the benefits experienced by D@D members. D@D members regularly communicate with the owner of the ranch via email and many of these unsolicited comments reflect the nature and depth of their experiences with D@D. This preliminary evaluation simply suggests that there are certain common experiences and benefits expressed by D@D members. These common experiences and benefits are reflected in participants' comments and tend to fall into three general categories: connecting with nature; connecting with others; and rejuvenation and healing. As these comments are reviewed, it is important to note that this is not a formal qualitative study. A more formal mixed-methods evaluation of the virtual care farm approach is currently in the planning stages. The researchers intend to use the findings from this preliminary evaluation to help direct future data collection.

Many D@D members are initially drawn to the program to observe, learn about, and connect with nature. Some become absorbed with monitoring the activities at the ranch and the lives and well-being of the animals. For example, two D@D members had the following unsolicited comments:

“I was up last night and found myself checking my two mothers (an osprey and a horse) in waiting – so calm and peaceful. These two wonderful animals only 47 vertical feet apart – together as expecting mothers, yet worlds apart in worldview. I love them both.”

“We have become transfixed watching the comings and goings of the life there that is so totally different than ours.” “We have learned so much from you about horses, their behaviors, personalities, etc.”

D@D members also stressed the importance of community and connecting with other members and with family members. It appears that the online format has the ability to introduce strangers who would otherwise never meet and to bridge distances for family members. Two members had the following unsolicited comments:

“There’s a reason we’re all together (D@D members), our friends in chat are special people, we all care about each other.”

“I live in England and my mom lives in Pennsylvania...(I) would phone my mom and we would watch the sun rise together and see Ozzie (an osprey) bringing breakfast to his family. It’s the next best thing to being able to visit the ranch in person.”

Finally, D@D members reported a sense of rejuvenation and healing that comes from connecting with nature and connecting with each other. This speaks to the community-building and emotional and social support capacity of the virtual care farm approach. The following four unsolicited comments by members reflect this notion:

“I am facing some surgery and have used my memory of the view at the ranch out over the fields to lower my anxiety. Guess I always wanted to be a “cowgirl” also.

“It’s hard to explain in words, it’s so special what you and everyone at Dunrovin give to me. I’ve been ill and Dunrovin is the best medicine for me.”

“...my mom started to laugh over the antics of Percy, Hope, and Dilly (donkeys) and I realized that was the first time I had heard her laugh like that since my dad had passed away.”

“Will be 90 come June so my days are numbered. Just knowing you folks at Dunrovin are there makes the trail a might easier to trek.”

The statements of these D@D members reflect the power that this program has to build community through nature and to address the loneliness that can accompany aging and declining health. Reflecting on the conceptualization of loneliness, the statements of D@D members appear to align well with items included in formal measures and scales. For example, the commonly used UCLA Loneliness Scale includes the following items: *“I lack companionship; My interests and ideas are not shared by those around me; and, I feel completely alone”* (Russell, Peplau, & Ferguson, 1978). D@D provides

opportunities for members to share experiences and interests and to establish engaging and supportive relationships. The relationship of loneliness with depression is well-established and the statements of D@D members give some indication that the virtual care farm may be effective in improving mood. Formal measures of depression typically ask, “*Are you in good spirits most of the time?*” (Geriatric Depression Scale; Sheikh & Yesavage, 1986) and probe the degree to which people feel that they “*could not shake off the blues even with help from family and friends*” (Center for Epidemiologic Studies Depression Scale, Radloff, 1977). As previously noted, rigorous evaluation of the virtual care farm concept is needed. The evidence presented in this report only introduces this approach using anecdotal data. That being said, there appears to be great promise in this approach to build community and to reduce loneliness through the union of technology and nature.

It is important to note that virtual care farms differ from actual care farms in several ways. First, virtual care farms do not provide opportunities for physical exercise, nor do they engage all of the participants’ senses (e.g., touch, smell). The exercise component of actual care farms can lead to physical benefits, such as weight loss (Elings, 2011), and the multi-sensory aspect may contribute to the overall feeling of “being on the farm”. Second, virtual care farms do not provide respite to family caregivers nor do they provide participants with an opportunity to change their environment (i.e., leave the house). These are realities with virtual experiences; however, there are benefits to the virtual approach, most importantly the ability to visit the farm without being physically present. Older adults can “attend” their virtual care farm at any time, without travel costs and the challenges of leaving home. This speaks to inclusion and the prevention of loneliness for those older adults who cannot travel for physical, psychological, cognitive, logistical, and/or financial reasons. These older adults tend to be most at risk for social isolation and loneliness. As one D@D member stated:

“...I have anxiety disorder and don’t travel or engage socially very much. Being able to connect through this internet program has been such a boon to me.”

Practice applications

The virtual care farm concept is intriguing and could be useful for professionals (e.g., activity therapists, social workers, nurses) working with older adults on the individual, family, and institutional levels. On the individual level, professionals could introduce the virtual care farm approach to older adults who are isolated in their homes due to living in remote locations or due to mobility issues. On the family level, the virtual care farm could help link older adults with family members living afar and create shared inter-generational experiences with children and grandchildren. On the

institutional level, professionals in nursing homes and assisted living facilities could incorporate visits to the virtual care farm into structured group activity programs or simply provide access to the portal to community members and let them visit the farm as desired. From a cost standpoint, virtual care farms such as D@D are affordable and most older adults and institutions have the resources and capacity (e.g., cell phones, computers, tablets) to engage in this activity. The costs of loneliness greatly exceed the costs of this approach. In fact, a recent report in the United Kingdom estimated the costs of loneliness on healthcare and social service use at over £1,700 (almost \$2,300) per older adult over a ten-year period and over £6,000 (over \$8,100) for the most severely lonely (McDaid, Bauer, & Park, 2017). Virtual care farms are an odd marriage of high-technology and low technology; yet, they present a creative and cost-effective approach to addressing loneliness by connecting people with nature and people with people.

Research implications

This article introduces, describes, and provides a preliminary evaluation of the virtual care farm approach. As noted, the research on online communities for older adults and care farms for older adults is limited and clearly there is a need to expand our understanding of these approaches. Authors of a systematic review on online communities for older adults identified three primary research needs: (a) studies focused on interventions rather than simply internet use; (b) longitudinal studies on “older adults’ internet use careers”; and (c) internet education for subsets within the older adult population (e.g., lower-income older adults; Forsman & Nordmyr, 2017, p. 1508). In terms of our understanding of care farms for older adults, researchers have also identified several areas of need, including: (a) identifying specific programmatic factors that impact well-being; (b) increased rigor in evaluation methods; (c) multidisciplinary research efforts that reflect the multidisciplinary perspective of care farms; and (d) studies focusing on the integration of care farms within the United States healthcare system (Anderson et al., 2017; Artz & Davis, 2017; Garcia-Llorente et al., 2018). The findings from this preliminary evaluation are certainly not confirmatory; however, they do provide direction for future research and highlight the potential of this creative approach.

Focusing specifically on the virtual care farm model, the author of this article is currently collaborating with the developers of D@D to formally evaluate this approach with existing D@D members. In addition, there are ongoing efforts to evaluate the virtual care farm program with older adults specifically using home health care – a group that is especially at risk of social isolation and loneliness due to compromised functional status (Shankar et al., 2017). The findings from this preliminary evaluation suggest that the virtual care farm approach may be

particularly effective with ‘homebound’ older adults and provide a vehicle for connecting them with community and nature. Future research efforts should rely both upon evidence of the two underlying approaches, online communities and care farms, as well as evidence gleaned from formal evaluations of the virtual care farm approach. Existing evidence is promising and the ground is fertile for further exploration of this innovative approach to addressing loneliness and building community for older adults.

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