Loneliness as a Closure of the Affordance Space: The Case of COVID-19 Pandemic

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Abstract

Since the beginning of the current COVID-19 pandemic, specialists were concerned about the potential detrimental effects of physical distancing measures on well-being. Loneliness has been underscored as one of the most critical ones given the wide range of mental and physical health problems associated with it. Unlike social isolation, loneliness does not depend on social network size, so it can be experienced even if surrounded by others, or not be experienced at all even if one is alone. In this article, I propose that the feeling of loneliness might result from a closure in a person's affordance space, i.e., in the whole range of affordances that might stand out as relevant to an individual with a particular repertoire of habits and embedded within certain sociocultural practices. I will explore three possible sources of this closure during the current pandemic, as well as some ways in which people coped with loneliness.

Keywords Loneliness · Affordances · Well-being · COVID-19 · Habits · Online sociality

1 Introduction

Since the beginning of the Coronavirus disease (COVID-19) pandemic, there has been a concern among specialists that sustained physical distancing measures taken to decrease the spread of the virus might lead to large increases in loneliness in the general population (e.g., Antonelli-Salgado et al. 2021; Fiorillo and Gorwood 2020; Killgore et al. 2020; Smith and Lim 2020). Among the many potential detrimental effects of these measures, loneliness has been underscored as one of the most critical ones, given the wide range of mental and physical health problems associated with it, such as depression, anxiety, substance use, cognitive decline, cardiovascular diseases, sleep disturbances, and suicide risk (Antonelli-Salgado et al. 2021; Hawkley and Cacioppo 2010; Holt-Lunstad 2018; Lee et al. 2021;

Leigh-Hunt et al. 2017; Lim et al. 2020; Stickley and Koyanagi 2016; Tso and Park 2020). Although loneliness was prevalent before the COVID-19 pandemic, this extraordinary situation can further our understanding of the phenomenon, since, as Killgore et al. (2020) assert, "[f]or the first time in many people's lives, they are experiencing an unwanted and prolonged separation from a vital, and deeply human, aspect of their existence. They are alone—with no certain end to the isolation in view" (p. 1).

Some of the first cross-sectional studies in places such as Hong Kong (Tso and Park 2020) and the United States (Killgore et al. 2020; but see Sutin et al. 2020) provided preliminary support to the above-mentioned concerns, reporting higher mean levels of loneliness among the general adult population compared to data published before the outbreak. A positive association between stay-at-home orders and loneliness was also found among a community adult sample in the United States (Tull et al. 2020). However, results from longitudinal studies comparing loneliness levels before and during the initial in-person contact restrictions among the general adult population are inconsistent. For instance, some studies found relatively stable mean-levels of loneliness before and during the outbreak in the United States (Luchetti et al. 2020) and Norway (Hansen et al. 2021); two others reported significant increases in loneliness compared to pre-pandemic levels in Germany (Entringer and Gosling

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2021) and the Netherlands (Van der Velden et al. 2021), while a study in Spain found significant reductions (Bartrés-Faz et al. 2021).

These measures were collected during the early months of the pandemic (between March and June, 2020), so follow-up studies are required to assess the impact of in-person social restrictions on loneliness in the long term using validated measures, including multiple assessments and underrepresented groups, and considering the severity and length of the physical distancing restrictions implemented. Nevertheless, despite these limitations, these inconsistent findings can still tell us something important about loneliness: These inconsistencies can be an expression of one of loneliness' core features frequently emphasized in the psychological literature, i.e., that loneliness "is not highly correlated with quantitative measures of objective social isolation", such as social network size, number of friends, and frequency of contact (Badcock et al. 2020, p. 2). Therefore, objective social circumstances, such as the limited in-person contact during stay-at-home restrictions related to the COVID-19 pandemic, are not a reliable indicator of the level of loneliness of a person because loneliness can be experienced even while one is surrounded by many others, or not be experienced at all even if one is alone. In this regard, loneliness has been described as "the distressing and unwelcome feeling of being socially isolated, even when among other people" (p. 1).

Holt-Lunstad (2018) asserts that, even if social isolation and loneliness "are distinct experiences" both of them "are characterized by a lack of social connection" (p. 127). However, unlike loneliness, the lack involved in social isolation can be overcome by just extending the number of a person's social contacts. In this regard, it would be more adequate to characterize social isolation "as an absence or limitation in the quantity of social interactions" (Cotterell et al. 2018, p. 80), while emphasizing that the lack involved in loneliness implies a lack of meaningful relations. Even if surrounded by others, I contend, lonely people are not really connected, since their relations are not *meaningful* for them. To explore this idea, I suggest conceiving the meaningfulness of these relations in terms of affordances, understood as the possibilities for action and interaction that the environment provides to an organism (term coined by Gibson 1979). Specifically, I propose that the feeling of loneliness might result from a *closure in one's affordance space*, i.e., a closure in the range of possibilities for action and interaction that the world affords. Given the relational nature of affordances, this closure pertains both to the individuals and to the materiality of the environment they inhabit.

In the next section, I will delve further into the notion of affordances and the rationale behind the election of the notion of *affordance space* (Gallagher 2015, 2018; Gallagher and Ransom 2016) to discuss loneliness in the context

of the physical distancing measures put in place during the COVID-19 lockdown that precluded people from going out for non-essential reasons (Sect. 2). Then, I will explore three potential sources of loneliness during lockdown, resulting from a disruption in the habitual possibilities for joint action (Sect. 3), affective regulation (Sect. 4), and embodied social interaction (Sect. 5). I will also consider some ways in which people managed to cope with physical distancing measures, which might have prevented the sharp upsurge in loneliness predicted at the beginning of the pandemic.

2 Why an Affordance Space?

The notion of affordance was first introduced by ecological psychologist James J. Gibson (1979) to refer to "what [the environment] *offers* the animal, what it *provides* or *furnishes*, either for good or ill" (p. 199). Crucially, this environment does not only include physical objects but also living beings, which offer us a rich spectrum of possibilities for interaction or interpersonal affordances (Brancazio 2020). According to this phenomenologically- and pragmatically-inspired tradition, what we directly perceive in our environment are not collections of qualities but possibilities for action and interaction: invitations to approach, to grasp, to avoid, to throw, to pull, to sit, to eat, to hold, to socially interact, to judge, to hug. Although there are several controversies regarding the characterization of affordances, I follow authors such as Chemero (2003) and Rietveld and Kiverstein (2014) in considering affordances not as something that is located either in the environment (as a physical property that exists independently of the existence of organisms that are able to perceive it) or in the perceiver (as belonging to a private consciousness that gives meaning to a neutral world), but in their *relation*, since, as Gibson pointed out, an affordance "implies the complementarity of the animal and the environment" (p. 199).

I take this relation to depend both on the materiality of the environment and on the repertoire of habits proper to what De Haan et al. (2013), borrowing Wittgenstein's (1953) notion, call a *form of life*. As Rietveld and Kiverstein (2014), observe, a form of life can refer to the general way of life of a kind of animal, e.g., its being "predatory or preyed upon, terrestrial or aquatic, crawling or walking, flying or nonflying, and arboreal or ground-living" (Gibson 1979, p. 3). In this general level of description, we can say, for instance, that a chair affords sitting to a human but not to a fish, a steep mountain cliff affords climbing to a goat but not to an anteater, and a river affords support to a water bug but not to a dog. However, as Rietveld and Kiverstein (2014) emphasize, the notion of form of life also accommodates the wide variety of sociocultural practices that are found within the general human form of life. These practices involve, according

to these authors, "relatively stable and regular ways of doing things" (p. 329)—or, as I will say, a repertoire of *habits* (Ramírez-Vizcaya and Froese 2019). Accordingly, even if the forms of life of an academic and a painter share many ways of doing things, since they belong to the human form of life, they also differ significantly in the specific patterns of behavior proper to each particular form of life—and thus in many of the affordances they perceive.

2.1 Landscape of Affordances

De Haan et al. (2013) coined the term "*landscape* of affordances" to refer to "all the possibilities for action that are open to a specific *form of life* and depend on the abilities available to this form of life" (p. 7). Given our discussion in the previous paragraph, we can say that our landscape of affordances as human beings is conformed by the whole set of affordances that are open to us as active members of communities who engage in a myriad of sociocultural practices involving particular repertoires of habits. As Rietveld and Kiverstein (2014) emphasize, the human landscape of affordances is available to our form of life even if no individual perceiver is responding here and now to its possibilities for action. This is so as long as our form of life preserves the abilities and practices in which those affordances are embedded, i.e., as long as there is at least one human that "could *potentially* detect the affordance" (p. 338).

Accordingly, even if during the implementation of COVID-19 related physical distancing measures no one was attending a concert, the stage of a concert hall could still afford playing to musicians. In this regard, what we experienced during the implementation of those physical distancing measures was not a closure of our landscape of affordances—although this is not to say that our landscape of affordances remained exactly the same: new affordances might have been added to it as new communications technologies were developed and introduced in the society to compensate for our lack of in-person contact (I will return to this point in Sect. 4). However, even if the affordances were potentially there for our human form of life, there is a sense in which our lived world was drastically contracted as a consequence of the current pandemic. What notion then captures this drastic reduction in our possibilities for action that most of us experienced and that some seem to continue experiencing? To answer this question, let us continue examining the conceptual repertoire available to us.

2.2 Field of Relevant of Affordances

De Haan et al. (2013) propose a distinction between the *landscape* of affordances available to a form of life and the *field of relevant affordances* "that a particular *individual* is responsive to in a concrete situation, depending on the individual's abilities and concerns. The field of affordances is thus a situation-specific, individual 'excerpt' of the general landscape of affordances" (p. 7) that is available to a form of life. This notion is useful to understand what makes a concrete individual in a concrete situation that offers multiple possibilities for action to engage with some affordances rather than with others or, to put it in other terms, what makes certain affordances become *solicitations* for an agent on a given occasion (Rietveld and Kiverstein 2014). Solicitations, as defined by Rietveld et al. (2018), are those "affordances that show up as relevant to a situated individual, and generate bodily states of action readiness" (p. 52). According to these authors, affordances only become solicitations for an agent when they improve her "grip on the situation", i.e., when acting on them contributes to "re-establish [a] relative equilibrium" (p. 53) in the agent-environment system "in a way that is in line with what matters to her", thereby reducing the "affective tension" (p. 55) pre-reflectively experienced because to a previous suboptimal grip on the situation.

A field of relevant affordances or solicitations includes four dimensions: (1) its width, which represents the amount of relevant affordances an agent is simultaneously open to in a concrete situation; (2) its depth, which refers to the bodily pre-reflective anticipation of future solicitations in our temporal horizon; (3) the individual affordances' height, which expresses the intensity of the "experienced solicitation or affective allure" (De Haan et al. 2013, p. 7); and (4) each individual affordance's color, which expresses the "variations in affective allure" (De Haan et al. 2015, p. 18) or "experienced relevance" (De Haan et al. 2013, p. 7, fn. 8). These dimensions are particularly relevant for our topic. As I stated in the Introduction, what lonely people lack are not social contacts but connections, which are inherently *meaningful*. I will add here that these connections are not restricted to the social domain, as is generally assumed, but extend to a human being's whole domain of interactions, including interactions with other living beings, with aspects of their material environment and even with oneself. I suggest that the notion of *field of relevant affordances* captures this meaningful aspect of our connections: an affordance in our human landscape acquires an inviting character because it is meaningful for us in the sense that it is *relevant* to our "dynamically changing concerns", i.e., to our "interests, preferences, and needs" (Rietveld and Kiverstein 2014, p. 341).

It is important to briefly acknowledge here that, in addition to the previously mentioned debate about the ontology of affordances, there is another debate regarding the scope of application of the notion of affordance and the extent to which this notion is able to capture the many different ways in which we experience solicitations. For instance, in a recent paper regarding the application of this notion in architecture, Withagen and Costall (2022) claim that they "are

no longer convinced that Gibson's concept of affordances is sufficient to capture what the environment means to us" (p. 506). Similarly, Ratcliffe and Broome (2022) question the "*utility* of the affordance concept" for psychiatry, arguing that "it remains too blunt a tool and only gets us to the beginning of a phenomenological inquiry into how possibilities are experienced" (p. 61).

As Dings (2018) recognizes, there is a point in these critiques given the tendency in ecological psychology "to neglect the phenomenology of how we experience affordances, a neglect which can be traced back to the work of Gibson [who] was not, or not primarily, concerned with the *experience* of affordances" (p. 683). Gibson developed this notion within the domain of visual perception, so it makes sense to question if it can be useful outside that domain and if it is able to account for meaningfulness in our experience of solicitations. I do think that it does, but also recognize that further phenomenological work is still required to properly spell out the experiential dimension of affordances.

It seems that the more affordances are relevant to us—both in the current situation and in our temporal horizon—, the more meaningful connections we will experience. It should be noted, however, that the fact that an agent experiences affordances as relevant or inviting in a concrete situation does not necessarily mean that they are good, beneficial or convenient for him. As De Haan et al. (2013) point out, "[s]omething can be important because it is dangerous and needs to be avoided, or because it is highly attractive and pulling us" (p. 7, fn. 8). In this regard, having a broad, deep, and high field of relevant affordances could make people feel lonely if what those affordances solicit is avoiding, hiding, or running away. These solicitations with a negative affective valence would rather narrow the individual's world. Accordingly, we should bear in mind that the relevant affordances missing in loneliness are those with which it would be enjoyable, pleasurable or attractive for an agent to engage if they were present—and she had the adequate abilities to do so.

Following Dings (2018), we could also add that the affordances with a positive valence whose lack is more relevant to loneliness are those that, if they were present, would evoke a "sense of mineness" (p. 692) in the agent. This sense of mineness, according to Dings, "entails [the] implicit realization […] that the experience fits an individual's psychobiography" (p. 691). Dings unpacks this idea in terms of how our self-narratives, as expressions of who we take ourselves to be, contribute to the experienced meaningfulness of affordances—to the height and color of the affordances in our fields. In this regard, he proposes that our responsiveness to solicitations greatly depends on how related they are to the "concerns that we identify with", i.e., to the diachronic concerns that "are central to our narrative" (p. 693). Thus, we can say that, "[p]henomenologically speaking, the experience of a solicitation *reveals* my narrative concerns" (p.

696). While I completely agree with Dings about the role of narratives for the sense of mineness that makes some solicitations more meaningful than others, I also think that this sense of mineness crucially depends on our *habitual identities*, which include but are not restricted to the habitual ways in which we narrate ourselves. As we will see in the next sections, it is the lack of those affordances that are more related to people's habitual identities that might lead to an experience of loneliness.

Dings (2021) delves further into the meaningfulness of affordances by proposing a holistic view that emphasizes the embeddedness of the particular concerns "to which an affordance is relevant" (p. 1858) in many other "diachronic and interconnected concerns" (p. 1868) at different timescales. Under this view, some affordances are merely relevant to the agent in that they are experienced as offering the possibility to perform the required movements to fulfill a short-term concern (e.g., grabbing and turning the door knob to get out of the room), while some other affordances are properly meaningful in that the possibilities for action they solicit are experienced as related to one of the agent's long-term concerns, i.e., to the "agent's values, commitments and self-narratives" (p. 1863). In this regard, according to Dings, "some affordances are experienced as low-level, specifying the movements that are afforded, whereas other affordances are experienced as more high-level, specifying the reasons or long-term goals that are relevant. These latter affordances can be colloquially described as *meaningful*" (pp. 1865–1866). And we could also say that it is precisely the lack of these meaningful affordances that is most relevant to the experience of loneliness. Moreover, conceiving loneliness in terms of meaningful affordances in this sense could also help us to differentiate the experience of loneliness from that of boredom without having to restrict loneliness to the social domain: while it is possible to alleviate boredom by engaging with affordances experienced as low-level, alleviating loneliness might require that we engage with affordances experienced as high level. These ideas need further development, but they might constitute an interesting starting point for future research on the topic.

Given the discussion in this section, it can be argued that physical distancing measures imposed since the onset of the COVID-19 pandemic brought about a severe reduction in our field of relevant affordances in the senses specified above. First, the width of our fields contracted, since we suddenly found ourselves having far fewer situations available that could invite us to act and, as a result, our spectrum of habitual behaviors was dramatically contracted. Second, most of us may have also experienced a contraction in the depth of our fields of relevant affordances, since we had no certainty about when our situation would return to normal or if it ever would. Third, most of the affordances required for the expression of our habitual identities swiftly became

out of reach. Additionally, it is possible that some of the solicitations in our field could have evoked bodily action readiness or tendencies to act in ways that were impossible not only at that particular moment but also in the near future, even if that action would have improved our "grip in the particular situation" (Rietveld and Kiverstein 2014, p. 342). Take, for example, a person that hears her mother's voice on the phone during a lockdown. Maybe that voice made her experience a readiness to leave her house, drive her car, and go to her mother's house to hug her. However, those possibilities for action were simply closed to her not only in her actual situation, but also in her temporal horizon: they were not part of her field of relevant affordances, even though they were obviously relevant to her current concerns. Moreover, she possessed the relevant abilities to take advantage of those possibilities for action, but the world just did not afford them.

However, there is still a sense in which the notion of a *field of relevant affordances* does not precisely capture the contraction in our possibilities for action experienced during the current pandemic, since we need a notion that gives us more than a snapshot of concrete engagements with affordances in particular situations. Given its dynamic character, the field of relevant affordances changes continuously as a relative equilibrium in the agent-environment system is reached. As Rietveld et al. (2018) note, "[t]he field of relevant affordances is a highly dynamic structure. Relevant affordances move the individual, but are also 'consumed' in the process of acting on them when the individual-environment relation is changed and other affordances come to stand out as relevant" (p. 58). One alternative that I pursue here is considering an intermediate level between the landscape of affordances and the field of relevant affordances, which could give us a sense of the potential fields of relevant affordances that are open to a concrete individual with a particular repertoire of habits.

2.3 Affordance Space

A notion that captures this is that of *affordance space.* As characterized by Gallagher (2018), "[a]n affordance space includes the full range of possible affordance fields relative to an individual", i.e., the totality of an agent's *fields of relevant affordances*, "including the current affordance field plus any possible changes in that field due to changes in physical or cognitive skills or environment". According to this author, each individual has a particular affordance space that differs from the affordance spaces of other people "due to differences in experience, skill level, education and normative constraints, etc." and that changes throughout one's lifetime in relation to our "life-stage—infant, adult, aged" and the "*social and cultural practices*" (p. 722). Additionally, Gallagher suggests that an individual's affordance space could suffer a permanent

reconfiguration as a result of a severe "[p]hysical damage to the body", such as "limb amputation, heart attack, or stroke" (p. 723) or some mental health problems, such as depression, schizophrenia, obsessive-compulsive disorder or utilization behavior. This reconfiguration implies changes in an agent's "form of existence" (p. 726), i.e., transformations in their being-in-the-world. I propose depicting those changes in the affordance space in terms of transformations in an individual's repertoire of habits, which are not conceived as rigid, mechanic, and mindless stimulus-response units, but as self-reinforcing, precarious, and adaptive patterns of behavior that provide "a background against which particular action possibilities or affordances can show up as meaningful to the perceiver" (Butler and Gallagher 2018, p. 52).

In the next sections, I will argue that the sustained physical distancing measures that have been implemented to reduce contagion during the COVID-19 pandemic brought about a sudden contraction of our affordance space, leading us to temporarily perceiving our environment in terms of what we cannot do, instead of what we can do. This contraction may have been an important source of loneliness for some people due to the radical disruption in some of their deep entrenched habits that constituted their identities. Loneliness has been non-exclusively associated with significant life events, such as moving to a foreign country, going through divorce, getting a new job, becoming a parent, or losing mobility in old age (Lim et al. 2020). During these life transitions, our habits are challenged because they might be unsuitable for dealing with new situations. Since we lack the appropriate resources to connect with it, the world may start to appear unfamiliar, even alien, as if it were functioning in a way that we can't understand. Loneliness lurks while our affordance space is temporarily closed. We can all agree that the current COVID-19 pandemic is a major life event that has disrupted our habitual interactions with the world, so loneliness can be one undesired consequence if people don't manage to compensate for this disruption. However, I will also suggest some ways in which some people were able to overcome this contraction by engaging with new affordances or increasing the affective allure of the existing ones, thereby improving, even slightly, their grip in the current situation. This might have prevented some individuals from experiencing high levels of loneliness, since, as Prati and Mancini (2021) observe, "[i]t is plausible that containment measures […] altered the ways in which people interacted but did not alter their perceived quality" (p. 206).

3 A Closure in the Possibilities for Joint Action During Lockdown

A full lockdown, in which people are advised or, in some cases, ordered to stay at home and avoid going out except for essential reasons, offers a clear scenario of a drastic

disruption to our affordance space, since people are unable to physically reach other people and places outside their households. One of the most obvious consequences of a lockdown is a contraction in the affordances for joint action and interaction that are usually available for us. In this regard, large-scale lockdowns might have prevented people from engaging in most of the activities that they regularly did with others, which include, for example, having dinner with friends, going for a date, playing board games, dancing with someone at a party, or going to a public place that affords spontaneous social interactions. In addition to the activity itself, doing things with others creates shared experiences that strengthen social bonds and open the space for further interactions, so lacking these affordances might be a potential source for loneliness. As Dahlberg (2007) points out, "loneliness, as a condition where other's companionship is absent, is a lack of someone to talk to or to do something with" (p. 199).

The absence of others can be felt more existentially intense when an important part of one's self is constituted by habitual activities whose (relative) optimal grip requires the physical presence of others. For instance, a participant from the Pandemic Experience Survey (Froese et al. 2021)—which provides subjective reports of people's experiences during the first wave of the COVID-19 pandemic in the United Kingdom, Mexico, and Japan—expressed this concern in relation to his job: "My main complaint", he wrote, "is not being able to do my job properly. I run face to face groups and this really isn't possible on a screen. I feel a large part of my identity has been lost" [EN_UK_0058]. Other examples include activities such as aikido. While it is recommended that individuals practice alone to improve their skills, aikido practitioners require the physical presence of others to display their abilities to the fullest. This is also true for partner dance. In both cases, the other person solicits certain moves and interbodily dynamics that cannot be expressed in isolation. In this kind of cases, the closure of an individual's affordance space means a temporary disruption of at least one of the person's habitual identities (Ramírez-Vizcaya and Froese 2019), as the above-quoted participant expressed, which might be experienced as a transient feeling of loneliness. In this regard, a longitudinal study comparing pre-pandemic and pandemic levels of loneliness reports smaller increases in loneliness in participants who were unemployed before the pandemic than in participants that had a job beforehand, especially if they lost their job or were working less time (Entringer and Gosling 2021). Although the relationship between an individual's identity and loneliness has not been widely studied, it has been noted that disruptions in a person's identity, which involve profound changes in routines and lifestyle, can trigger or

exacerbate a person's feelings of loneliness (Morgan and Burholt 2020).

However, even in the extreme case of a large-scale lockdown, some people managed to cope in different ways. For instance, in a study consisting of in-depth interviews with women living alone during lockdown in Slovenia, some informants reported gradually resuming in an online modality their regular activities, which included "psychotherapy, working out with a personal trainer, […] group exercise classes, or even setting up and leading online classes for others" (Kamin et al. 2021, p. 9). Some younger informants also reported having created or joined online spaces to engage in activities such as reading poetry, drinking cocktails, dating, or having virtual parties. For one of the informants that participated in online clubbing, switching to live stream provided a "feeling that everyone is sharing the same time, the same spot, and the same story […] that gives you a feeling of a community". Some also reported having used several new and old chat groups for "regular communication" and for reviving "communication with old schoolmates or more distant family members" (p. 9). In this regard, as Dahlberg (2007) points out, "[d]uring the pandemic, social distancing measures may not mean a distance in social relations because it is possible to stay connected in non-physical ways, via text, phone, or videoconferencing" (p. 55).

We also find similar ways of compensating for the reduction in affordances for joint actions and interactions in the corpus of the Pandemic Experience Survey (Froese et al. 2021). In that survey, people reported performing joint activities online, such as attending conferences or classes that were not available for them before the pandemic, playing online videogames, having a virtual coffee or beer, or joining a voice chatting community through Discord. For instance, one of the participants reported having joined an online film group that meets up "every Friday with a playlist of music to get you in the mood and an after-film party-you were encouraged to dress up, cook a specific food/make a particular drink", as well as having watched all the plays from the National Theater, which "have been superb and encouraged us to watch plays we wouldn't normally have gone to" [EN_UK_0379]. Therefore, we can say that these online forms of activities and interactions compensated for the contraction of the affordance space during the pandemic, and even that they expanded the affordance spaces of some people, offering them new possibilities for joint action and interaction that might remain within their repertoire of habits. In fact, during the first months of the COVID-19 pandemic, there was a sharp increase in the use of social media and videoconference technologies, which, according to Lim et al. (2020) "may have facilitated people's adaptation to the social restrictions imposed by lockdowns" (p. 802).

Unfortunately, these technologically mediated forms of engagement are not open to everyone. In this regard, older adults lacking the relevant skills and people with no access

to Internet or with a poor Internet connection may have experienced a larger contraction in their affordance space, which could be one of the factors contributing to the increases in loneliness found during the COVID-19 pandemic among the elderly population (e.g., Heidinger and Richter 2020; Kotwal et al. 2020; Krendl and Perry 2021; Luchetti et al. 2020; Van Tilburg et al. 2021), although, since most studies have been conducted online, it is likely that people with poor internet access or technological skills have been underrepresented. Dahlberg (2021) underscores the importance of also implementing "non-technological ways of combating loneliness during the pandemic", given the social exclusion experienced by some older adults and the "structural barriers in terms of Internet and/or broadband access in some regions" that "hinder the use of social technology" within the elderly population and people with scarce economic resources (p. 1163).

A good example of this kind of measures can be found in the Campaign to End Loneliness's *Loneliness in time of Covid-19* session (Jones and Jopling 2021), which addressed the challenges that organizations faced for making people living alone starting and keeping up conversations during the pandemic lockdown. Several measures were taken in response to those challenges. For instance, one of the supporting organizations (*b:friend*) delivered activity packs to older neighbors living alone, so that they could have something to talk about during befriending volunteers' phone calls. Those packs contained "personalised activities, games and challenges—along with letters and cards from school children, cakes and treats, flowers", as well as "mixtape CDs with funny stories recorded by staff, primary school kids telling their favourite jokes, dance classes and sing-alongs". The organization also held "telephone social clubs" that included "baking home-made pizzas, a virtual trip to the USA, and trips down memory lane" (p. 8). These activities helped people that were physically isolated to expand their affordance spaces, giving them both the available resources to engage with new affordances and the opportunity to share their experiences with others.

4 A Closure in the Possibilities for Affective Regulation During Lockdown

A less obvious case of disruption in our affordance spaces during COVID-19 pandemic is that in which a full lockdown critically contracted our affordances for successful affective regulation that we usually take for granted. Our space of affordances includes not only possibilities for action and interaction, but also possibilities for regulating our emotions (Krueger and Colombetti 2018). When we are sad, for instance, we might tend to seek the comfort of a particular friend, or take a walk in our favorite park, in which we feel

comfortable and safe, or go to a place to cheer up, like a cozy coffee shop or bar. According to Krueger and Colombetti (2018), "these practices and resources afford regulating our mood toward a desired end-state" (p. 224) and, when used regularly, they become incorporated into our daily life as "a habitual, and often experientially transparent, part of how we manage our affective states—as when a musician regularly uses her instrument to work through her affective states" (p. 229).

Having their habitual affordances for affective regulation at hand could have prevented many people from feeling lonely during lockdown. However, having those affordances out of reach may have induced loneliness if people could not find ways to compensate for their absence. For instance, one of the participants of the Pandemic Experience Survey (Froese et al. 2021) reported feeling lonely "especially in strict lockdown when couldn't meet anyone or exercise much. At beginning was ringing people a lot. Then went through a period of introversion where is [sic.] was difficult to reach out before being able to contact lots of people virtually again" [EN_UK_0606]. In this regard, finding ways to improve their grip in the situation during lockdown through the use of available affordances or the creation of new affordances for affective regulation within a restricted living space could have been crucial for preventing or reducing loneliness.

In the Pandemic Experience Survey (Froese et al. 2021), many people reported having been able to cope with loneliness by making phone and video calls, writing emails, and chatting to keep in touch with family and friends. Other participants broadened their affordance space to cope with social isolation by taking up some old hobbies and long forgotten projects: "I've also taken up sewing clothes again, after many years" [EN_UK_0026]; "I am exercising and returning to a hobby of woodworking a little bit" [EN_00_1853]; "A little more free time has enabled me to tackle projects previously shelved" [EN_UK_0418]. As Dahlberg (2007) notes, "[o]ne can look for a certain connection, some form of companionship, by having something meaningful to do in one's loneliness" (p. 204). In this regard, many participants in the Pandemic Experience Survey resorted to activities such as gardening, exercising, cooking, baking, reading books, practicing yoga, meditating, listening to music, dancing, gaming, playing a musical instrument, praying, making masks, or walking their dog. For instance, one of the participants reported that she had "been taking online yoga classes, and having virtual happy hours with friends and family members. We've been meeting one of our friends (who lives alone) for socially distanced walks with our dogs" [EN_00_0453]. Indeed, owning a dog was associated with reduced levels of loneliness in a study with older adults living alone during COVID-19 lockdown (Oliva and Johnston 2021). These examples suggest that we can

create meaningful connections not only with other people, but also with other living beings, with nature, with oneself and with some of the many affordances in our sociocultural environment.

Another possibility for emotion regulation involving a meaningful connection to oneself is writing a diary, which was used by some of the participants in the Pandemic Experience Survey (Froese et al. 2021). For instance, one of them reported having been "[k]eeping a daily diary, with my partner, of diet, exercise, and our experience of each day" [EN_UK_0065]. One of the reports also acknowledges the role of writing a diary for emotion regulation: "I am keeping a COVID diary and if I want to 'download' I'll talk to my diary" [EN_00_1975]. Likewise, keeping a diary was helpful to overcome the monotony of those long periods under lockdown lacking any structure: "Everyday seems the same without the usual sign posts of 'events' to look forward too [*sic*]/act as deadlines. Days just slip by especially with getting up so late. Fill in my diary to make sure that there are not endless blank days" [EN_UK_0470]. Some even kept a diary to temporarily locate themselves in their reality: "Some weeks fly by, some drag. I find it very hard to keep track of what day it is. I keep a diary each day so I can keep writing down what the date is" [EN_UK_0378].

Our bodies are habituated to certain activities that provide structure and comfort to our daily life, so when they are disrupted, a void and awkwardness seizes us, and the days blend into one another; hence the importance of keeping a routine as a way to regulate our affective states. In fact, establishing a routine was one of the strategies that Scott Kelly used to cope with isolation while spending 340 days alone in the International Space Station as part of an experiment that studied the physical and psychological impact of long-term space missions on astronauts. In an article for the New York Times in which Kelly shared some tips for dealing with isolation during COVID-19 lockdowns, he stated that during his time on the space station, his "time was scheduled tightly, from the moment I woke up to when I went to sleep. Sometimes this involved a spacewalk that could last up to eight hours; other times, it involved a five-minute task, like checking on the experimental flowers I was growing in space" (Kelly 2020).

Establishing a routine and a new set of habits is not about always doing the same thing in the same order, but about finding meaningful activities and performing them with a certain consistency, including resting and arranging some special activities, such as a dinner with soft light and one's favorite food and music. It is thus more about building what Køster (2022) calls our "personal niche", which is conformed by all the "things, places, practices and persons that I am habitually integrated with and daily use to recollect myself". Interestingly, Køster proposes that our habitual interactions with the environment scaffold our sense of self,

which is not something given and fixed, but "an achieved structure, dependent on daily confirmations". In reflecting on the experiences of COVID-19 patients admitted to an intensive care unit, Køster discusses the "profound loss of sense of self and feelings of becoming anonymous" that resulted from these patients' "radical deprivation from [their] *personal niche*" (p. 3). In relation to our topic, it is possible that the contraction of the affordance space that is relevant to loneliness is related to a deprivation of part of our personal niches, so a reconfiguration of our personal niche could be useful to regulate our affective states. In this regard, it would be important to explore more deeply in the future how the experience of loneliness is related to a loss in our sense of self.

Another protective factor for loneliness that could have helped some people to regulate their affective states while in social isolation is the feeling of togetherness, i.e., the feeling that they are not alone in this, since they are sharing a similar situation with many others. This feeling of togetherness is expressed by one of the participants in the Pandemic Experience Survey (Froese et al. 2021) in the following terms: "Strangely, the world seems more connected than before. Hearing the same kinds of news coming out of all kinds of different countries and thinking about people all over the planet experiencing the same kinds of anxieties, fears, restrictions, and hopes, has led to this" [EN_UK_0019]. This feeling of togetherness could have led some people to show support to others in need, such as a woman in that survey who reported having dealt with loneliness not only by making "[l]ots of faceting and phonecalls", but also by "[s]ending cards and gifts" that she "bought online for others who are isolating too" [EN_UK_0040]. Other people could have also felt the support from others during this difficult period, which could have alleviated their feelings of loneliness. For instance, a woman from the same survey that reported not having felt much lonely during stay-at-home orders expressed having felt connected and supported during the stay-at-home orders: "I live on a sociable street and put chairs table and rug in my front garden [...]. So I've been seeing friends and neighbours at a social distance throughout. My nicest friends across the world have been in touch to check in" [EN_UK_0086].

Luchetti et al. (2020) also noted that some participants in their study felt more social support during the initial phase of the pandemic than before it, which might have increased "resilience to loneliness, even among at risk groups" (p. 905). Other example of support during the COVID-19 pandemic include the #ViralKindness movement in Australia, in which local groups have been helping their most vulnerable neighbors by dropping in their letterboxes postcards offering them help with shopping or walking their dogs, as well as checking them in through regular phone or video calls. As Smith and Lim (2020) point out, "[t]his mobilisation

of grassroots action has revealed a reservoir of energy and community capacity that might be drawn upon to tackle the enduring loneliness and social isolation experienced by many" (p. 2). These shared feelings of togetherness may have acted as a background context of security that contributed to open people's affordance space. Knowing (even implicitly) that I am sharing this experience with others, that others understand what I am going through, and that I can rely on others for emotional support, could make some aspects of the environment begin to appear more affectively salient in a positive way, offering me the opportunity for engagement.

5 A Closure in the Interpersonal Affordances While Interacting Through the Virtual World

As we saw in the previous two sections, a recurring theme among participants in qualitative studies on loneliness during lockdown has been a widespread use of digital media to help them reconnect with the world. According to Prati and Mancini (2021), "[t]hese technologies may have facilitated people's adaptation to the social restrictions imposed by lockdowns" (p. 206). In this section, I will concentrate on the use of both one-to-one and group videoconferences for social connection, since videoconferences provide us with the broadest range of interpersonal affordances among all the forms of digital communication available to the general population. As Osler (2020) notes, "[l]ive video feeds quite literally put us face-to-face with one another" (p. 581). However useful these technologies may have been to regain social contact, there is still a sense in which the presence of others through the virtual world involves a reduction of the perceptual and interactive possibilities that other people habitually afford and, consequently, an important disruption in our interpersonal affordance space.

Through our life-long face-to-face interactions with others, we have developed a set of perceptual and interactive habits that have become incorporated as an implicit body memory that make us prone to act in certain ways in particular situations. For instance, we implicitly know that we can get closer to a person to better hear what she is saying or to have more privacy in our conversation. We also know that, if we move, we can see other people from different angles and get different profiles of them. As Merleau-Ponty (1945) pointed out, "external objects never show me one of their sides without thereby hiding from me all their other sides, but I can at least choose the side I want them to show me" (p. 93). This possibility is excluded with the bidimensional image that we get during a videoconference, in which the aspect that we see from others does not depend on how we move. Some other possibilities for interaction are also

missing in digital communication, such as the possibility of spontaneously meeting at the coffee area with your co-workers or continuing a discussion at the end of a seminar. One of the participants in the Pandemic Experience Survey (Froese et al. 2021) expressed a related idea:

> We are meeting friends online, and that's been good, but it's not the same. I quite like working from home up to a point, but I'm at the stage where I'd really love to be back in a work building with my colleagues-you can't just pop in and see a work friend, catch up over the water cooler ... [EN_UK_0551]

Moreover, the dynamics of videoconferences can also be challenging, as they differ from the dynamics that we have been incorporating since childhood through our habitual face-to-face interactions. The challenge may be even greater for people with social anxiety, who are also more likely to experience loneliness (Antonelli-Salgado et al. 2021). Such was the case of a participant in the Pandemic Experience Survey (Froese et al. 2021), who reported having felt lonely during lockdown:

> What I have learnt though is no online platform for communication can substitute face to face interactions. As, issues like interruptions and knowing when to interject are a huge issue, when talking to multiple people, which leaves the conversation stilted and awkward at times. Whilst also situations where normally if you were in a large group you can expect multiple conversations to be going on, which you can dip in and out. This is not possible with online communication platforms, as only one thread can be maintained for anyone to understand, which puts more pressure on the speaker as all eyes and ears are on them. Which in certain situations has resulted in me not speaking during a zoom chat, because the social anxiety of being the complete center of attention has been too great. [EN_UK_0580]

Interacting through a videoconference app may also disrupt our affective social affordances, since we are lacking the "bodily resonance" that, according to Fuchs (2017) "provides the basis for an intuitive empathic understanding" (p. 4). During face-to-face interactions our bodies are affected by the subtleties of other persons' gestures, tones of voice, postural expressions, and even smells. Moreover, face-to-face communication also affords interactive possibilities such as spontaneously hugging a friend in the middle of a sensitive conversation or offering someone a coffee to relax a discussion. However, in virtual interactions, these affective affordances are only partially available, which may reduce the possibilities for meaningful social connections. We can think of these experiences in terms of an experienced absence provoked by having the

others present, but nonetheless withdrawn because they do not afford the whole set of perceptual and interactive possibilities that they habitually do. In this regard, it is likely that the partial presence of others through the virtual world may leave us with a sense of longing for the broad spectrum of interpersonal affordances that is habitually available to us during face-to-face encounters with others, which, in turn, may lead us to experience loneliness.

Some complaints in this direction were expressed in the Pandemic Experience Survey (Froese et al. 2021). For instance, one participant, who regarded that period as the "loneliest time of my life", reported that using on-line communication technologies "is not a great replacement to face to face interaction. Some of the emotional component missing [sic.]" [EN_UK_0043]. Other participant, who considered that "[e]xperiences with technology has been fine", also recognized that "most definitely cannot replace physical contact for things like parties/celebrations etc." [EN_UK_0083]. However, many participants in that survey reported having experienced satisfactory interactions through digital forms of communication, taking advantage of the unique possibilities these technologies afford. For example, one of the participants that expressed having been using "video calls in order to stay in touch with close friends and family" acknowledged that "connecting on-line rather than f2f lends itself to more in-depth conversations, talking about, e.g. political issues, each others experiences, feelings, and dreams, rather than the typical pub chit chat" [EN_UK_0019]. Another person found in online communications a way to engage in the protests that were taking place in his community: "the police violence in the USA has forced us to talk with others online more than usual b/c we cannot participate in the protests, but we need to voice our support. So we discuss, write, and engage with others in solidarity with the protesters" [EN_00_0096]. For another participant, videoconferences afforded a broad range of interaction possibilities:

> I have online group music lessons, did a brill online dance party, organised book and knit groups on zoom. Plus. Done a couple of festivals – great as i [sic] might not have been able to afford time and money to attend otherwise. […] Zoom dance party was hugely fun - much more honest experience seeing everyone in their front rooms, un made up, dipping in and out - live the informality. [EN_UK_0086]

In these last cases, participants somehow managed to compensate, at least temporarily, for the interpersonal affordances that were missing because of lockdown restrictions. One could even say that these new forms of digital interactions extended and enriched not only those person's affordance spaces, but also the human landscape of affordances.

Finally, it is also possible that, at least for some people, live videoconferences and other forms of digital communication helped to develop what Osler (2020) calls "a *sense* or *feeling* of togetherness with others", i.e., a sense that we are "sharing an experience *together*" (p. 573), which may have acted as a protective factor for loneliness. Even if we are not interacting in-person, when we connect with others through digital technologies, we are still *embodied* beings that are able to emotionally resonate with others (Siqueiros-García et al. 2018). As Osler (2020) notes, "when I logon to the internet, my body does not evaporate; I still feel myself typing, as situated in the world, as a feeling body" (p. 575). Moreover, I also agree with Osler in that digital interactions with people with whom we have a previous history of in-person interactions are "permeated with a habitual sense of togetherness", so "although the medium for interaction might be new, the experience of feeling together with others in this way, at least in some instances, might not be that novel" (p. 580).

6 Conclusion

The few longitudinal studies on loneliness during the COVID-19 pandemic that have been published so far present contradictory findings that may point to a core feature of this complex phenomenon: its relative independence from objective social isolation. Accordingly, it is possible for people to feel lonely even among many other people or, conversely, not experience loneliness while being socially isolated. In this regard, I proposed that what lonely people lack are not just social contacts but connections, not only with other living beings, but also with themselves and their environment. To better understand this claim, I suggested conceiving loneliness as a result of a closure in a person's affordance space, understood as the whole range of possible solicitations or affordances that might stand out as meaningful to a concrete individual with a particular repertoire of habits and embedded within certain sociocultural practices.

Then, I explored three possible ways in which the COVID-19 lockdown, as a major life event, could have disrupted our affordance space, as well as some strategies that people used to reconfigure it, which might have prevented them from experiencing high levels of loneliness. First, I considered the case of a reduction in one's possibilities for joint action and interaction, which could be felt more existentially intense when an important part of our identity is constituted by habitual activities in which other people are needed to get an optimal grip. In this case, I presented several examples of people who managed to compensate for this contraction in their affordance spaces by engaging with digital technology in various creative ways, with some of them even exploring joint activities that were not afforded

before the pandemic. However, I also acknowledged the importance of providing older adults and people with poor Internet access living alone opportunities to engage in activities that they can share with others.

Second, I considered the possibility of a contraction in our habitual affordances for affective regulation during COVID-19 lockdown. Also in this case, I presented some accounts of people who were able to improve their grip in the situation by taking advantage of the possibilities for emotion regulation offered by other available affordances (some of them long forgotten) or discovering new affordances within their restricted living space. I also considered the role of habits in providing structure and comfort in our daily lives, as well as the feeling of togetherness that emerged as many people realized they were all sharing this disruptive experience with others, which might have provided a context of security that further opened their affordance spaces. The accounts provided suggest different ways in which people established meaningful connections not only with other persons, but also with other living beings, nature, aspects of their sociocultural environment, themselves, and the wider community.

Third, I explored a possible closure in our interpersonal affordances resulting from the substitution of most in-person interaction for digital forms of communication during lockdown, focusing on the use of videoconferences for social connection. I acknowledged that some people found these forms of communication lacking, since they precluded the possibility for spontaneous meetings, challenged their habitual ways of interaction, and lacked the emotional component present in face-to-face interactions. However, I also considered other examples of people who experienced satisfactory online interactions and made a creative use of these technologies, taking advantage of the unique possibilities that they afford. I suggested that, in these cases, people may have not only compensated for the interpersonal affordances that were missing because of lockdown restrictions, but also enriched their affordance spaces with new forms of communication that helped them to prevent or deal with loneliness. Furthermore, I suggest that those new forms of interaction constitute an enrichment of the human landscape of affordances.

A closure in our affordance space can be transient and lead to a short-term feeling of loneliness. In fact, we all have experienced fluctuating contractions in our affordance space at various points in our lives. To counteract this closure, we have the possibility to effect some transformation in our environments—which may include transforming our normative frameworks—or to form new habits that could help us to reconnect with the world and re-open, while re-shaping, our affordance space. For people who managed to compensate for a temporary closure in their affordance space during COVID-19 lockdowns, this experience could have been an opportunity to connect or reconnect with others, with themselves, and with a wider community. However, it is an open, empirical, question whether this will continue to be the case if lockdowns keep being extended. This leads us to one idea that I would like to further explore in a future work: while transient feelings of loneliness can be positive in that they motivate us to connect or reconnect with others, loneliness can also become habitual, shaping the self, and thereby transforming the way a person inhabits the world.

Declarations

Conflict of interest The author declares no potential conflict of interests.

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