Original Article

Are There Three Subtypes of Social Distancing?

A Longitudinal Investigation of Physical Distancing, Social Contact Limitations, and Emotional Distancing

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Abstract: *Background*: Social distancing is often used as something of a catch-all category without clear definitions of its subtypes. *Aims*: We propose that social distancing has three subtypes: physical distancing, social contact limitations, and emotional distancing. *Method*: To test this hypothesis, we employed a longitudinal design to analyze the trajectories of social distancing subtypes over a period of 8 months during the COVID-19 pandemic (N = 6,026). Three years after the main survey, we recontacted the same participants, asking whether they would be willing to re-adopt social distancing measures in the context of a new pandemic (N = 841). *Results*: First, using a confirmatory factor analysis, we demonstrated that these subtypes are related but distinct constructs. Second, using group-based trajectory modeling, we identified trajectories of individuals following persistently low, moderate-low, moderate-high, and high levels of social distancing subtypes over time. Trajectories of physical distancing and social contact limitations were highly similar and decreased over time, whereas trajectories of emotional distancing were significantly different from the other two subtypes and showed stability. Importantly, we found sociodemographic and mental health indicators distinguishing these trajectories. Finally, we found that emotional distancing exhibited a stronger and more consistent association with social contact limitations than with physical distancing across studies. *Conclusion*: This study proposes a refined taxonomy of social distancing, highlighting the distinct subtypes of physical distancing, social contact limitations, and emotional distancing (see items in the Appendix). This new taxonomy has been both conceptually and statistically validated in the present paper and can assist other experts in assessing the construct of social distancing more accurately in future studies.

Keywords: social distancing, physical distancing, social contact limitations, emotional distancing, COVID-19

To decrease the spread of COVID-19, national governments, advised by health authorities, have imposed a great number of restrictions (World Health Organization, 2020). For example, across many different countries, health authorities temporarily closed borders, restaurants, schools, universities, sports events, and religious and cultural centers, and outlawed gatherings in open spaces. These "social distancing" rules, in concert with other public health measures such as mask wearing, handwashing, and vaccines, have been found to be effective strategies to flatten the epidemic curve (Talic et al., 2021). However, while nations around the world have encouraged people to practice social distancing, this concept has been regarded as something of a misnomer (Das Gupta & Wong, 2020). Specifically, social distancing and physical distancing are often used interchangeably in the literature and mass media. This confusion can have unintended but detrimental effects, as it may evoke negative feelings of being ignored, unwelcome, left alone with one's fears, or even excluded from society (Wasserman et al., 2020). The present work aims at offering a more nuanced picture of social distancing by exploring the associations between three related but distinct subtypes: physical distancing, social contact limitations, and emotional distancing, within a period of 8 months during the COVID-19 pandemic, and 3 years after the pandemic, among French speaking Belgians (N = 6,026). To go further, the current paper will explore the relations between these three subtypes and sociodemographic factors including age and gender, as well as mental health indicators such as loneliness and depressive symptoms.

Social Distancing During the COVID-19 Pandemic

Social distancing can be defined as a community infection-control measure aimed at achieving physical separation by restricting the movement and contact between individuals during outbreaks (Fong et al., 2020). More specifically, social distancing rules are public health practices that aim at preventing sick people from coming in close contact with healthy people in order to reduce opportunities for disease transmission. Considering the spread of COVID-19 across the world, the literature and mass media on COVID-19 uses *social distancing* in diverse ways, including as a synonym for physical distancing (Svoboda, 2021; Wasserman et al., 2020). However, a few works have underscored the distinction between these concepts. For instance, Das Gupta and Wong (2020) highlighted the ambiguous character of social distancing and suggested that the public health literature replace it with physical separation. More precisely, physical distancing implies a physical separation by keeping a measurable distance with unknown people (usually between 1 m and 2 m, i.e., 3–6 feet), whereas social contact limitations involves a social separation by limiting the number of in-person contacts and time spent in-person with others (Wollast, Schmitz, et al., 2023). For instance, social contact limitations involves avoiding face-to-face social interactions with others.

In addition to physical distancing and social contact limitations, the present work aims to explore a third subtype of social distancing: emotional distancing. In the initial set of items used to create the Social Distance Scale, Prachthauser et al. (2020) targeted multiple aspects of social distancing (i.e., physical distancing and social contact limitations), including emotional distancing (e.g., "I have been emotionally distant from others living outside of my home this past month."). This emotional subtype of social distancing is characterized by an *emotional separation* from others. In this context, Ornell et al. (2020) argued that physical distancing and emotional distancing should be considered distinct constructs. Similarly, Aminnejad and Alikhani (2020) wrote that "it should be emphasized that distancing oneself from others does not mean being emotionally or socially distant." (p. 1).

We conceptualize emotional distancing in the context of a crisis in two primary ways. First, it can be an intentional behavior where individuals emotionally avoid others to lower the perceived risk of infection during the COVID-19 pandemic. This could stem from a misunderstanding of public health guidelines or an overzealous interpretation of social distancing measures. In this view, emotional distancing manifests as an extreme form of social distancing practiced by some individuals. Second, emotional distancing may manifest as an unintended consequence, resulting in loneliness due to stringent adherence to physical distancing and social contact limitations. This aligns with Dotson et al.'s (2022) observation that emotional distancing often involves a significant loss of affective connections and social estrangement. They note that the absence of daily, in-person interactions and the relegation of extrafamilial social life to online formats during the pandemic led to a weakening of peer relationships, creating a unique form of social estrangement with potential long-term implications. Thus, emotional distancing can be conceptualized in both intentional and unintentional ways, contributing to a complex dynamic of social and emotional experiences during the pandemic.

Taken together, we argue that emotional distancing can be seen both as a deliberate protective measure and as an inadvertent outcome of the other forms of social distancing. Therefore, it represents an extreme form of social distancing that encompasses both intentional avoidance and consequential loneliness (see Figure 1).

Age and Gender Differences in Social Distancing

Many studies have demonstrated associations between health behavior adherence and psychological and sociodemographic factors (e.g., Abakoumkin et al., 2023; Douglas et al., 2023; Enea et al., 2023; Keng et al., 2022; Schumpe et al., 2022; Stroebe et al., 2021). Specifically, research has shown that men and women differ both in their perceptions and their behaviors related to social distancing (e.g., Dekeyser et al., 2023). For instance, women are more likely to follow recommendations regarding physical distancing and social contact limitations as compared to men (Bigot et al., 2021; Rodríguez-Fernández et al., 2021; Wollast, Schmitz et al., 2023). This gender difference is often driven by women's greater concerns about health problems and its transmission to family members (Guo et al., 2021). Similar differences are observed among age groups. Older people are having significantly fewer close contacts than younger people, which is in line with the public health authorities' recommendations (Canning et al., 2020), demonstrating a higher need for social connections among young people. Consequently, it has been found that younger people adhere less frequently to physical distancing and social contact limitations as compared to older people (Wollast, Schmitz et al., 2023).

To the best of our knowledge, no quantitative studies have examined the role of gender and age in emotional distancing during COVID-19. However, given that older adults typically have fewer social contacts than younger individuals, they may feel less need to maintain emotional closeness with others, especially in times of crisis. Similarly, research

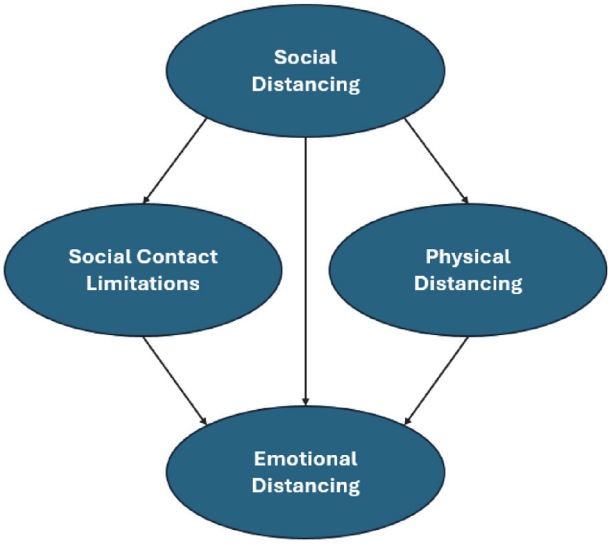

Figure 1. Hypothesized associations between the social distancing subtypes.

suggests that men, on average, prioritize independence and self-sufficiency more than women (Wollast et al., 2025), which could lead them to exhibit greater emotional distancing.

Social Distancing and Mental Health

While these COVID-19 restrictions have been found to be effective strategies to flatten the epidemic curve (Talic et al., 2021), evidence suggests that some of these restrictions may lead to negative consequences for mental health (Aknin et al., 2022). For instance, using a longitudinal design, Wollast, Schmitz et al. (2023) evidenced that adherence to unnatural and avoidant sanitary behaviors (physical distancing and social contact limitations) were associated with poor mental health over time, whereas no association was found with sanitary behavior that people were already used to practice (handwashing). In other words, while handwashing is a habitual behavior without any social cost, social contact limitations and physical distancing have costs because they are avoidant behaviors (Bish & Michie, 2010). Avoidant behaviors have detrimental effects on mental health because they are counterintuitive, unnatural, and they work against people's basic need for togetherness (Pfefferbaum & North, 2020; Rajkumar, 2020). These findings are consistent with many COVID-19 studies evidencing that avoidant behaviors such as social contact limitations and physical distancing led to high levels of loneliness (Killgore et al., 2020), social isolation (Williams et al., 2021), negative emotions (Zhu et al., 2021), and psychological distress such as depression and anxiety (Peterson et al., 2021).

In this context, we consider emotional distancing as an avoidant behavior and more specifically, as a direct consequence of social contact limitations and physical distancing. Because emotional distancing involves a separation with other people on an emotional level, two hypotheses could be contrasted. On the one hand, the lack of emotional support from others could be associated with poorer mental health including greater loneliness and higher depression. On the other hand, emotional distancing may be activated only among specific clusters of individuals who need to protect themselves from unwanted psychological distress caused by COVID-19 (i.e., a group of people who would have high levels of social contact limitations). For those individuals, separating themselves from others emotionally may not result in poorer mental health. If this is the case, no association should be observed between emotional distancing, loneliness, and depression.

The Present Study

Because lockdowns and social distancing policies affected the connection between individuals, we propose to investigate three related but distinct types of social distancing: physical distancing, social contact limitations, and emotional distancing. Using confirmatory factor analysis and group-based trajectory modeling (Nagin, 2010; van der Nest et al., 2020), the present longitudinal study aims at investigating the interconnection between these three subtypes of social distancing over time, in the light of sociodemographic factors and mental health indicators, within a period of 8 months during the COVID-19 pandemic among French speaking Belgians (N = 6,026), as well as 3 years after the main survey.[1]

Hypothesis 1 (H1): We hypothesized that physical distancing, social contact limitations, and emotional distancing are significantly related yet distinct constructs. Additionally, we expected a stronger correlation between physical distancing and social contact limitations compared to their correlations with emotional distancing, which we anticipated would be weaker.

Hypothesis 2 (H2): We expected to identify distinct trajectories characterized by different levels of

[1] This study is part of a broader international longitudinal research project on COVID-19, health behaviors, and mental health (see Wollast, Schmitz, et al. 2024; Wollast, Preece, et al. 2023). While we have reused some variables, such as health behaviors, the objectives and research questions of the present study are significantly different.

adherence (i.e., low, moderate, high) to physical distancing, limitations of social contact, and emotional distancing over time. In addition, we postulated that physical distancing and social contact limitations will produce linear and non-linear (i.e., quadratic) trajectory shapes affected by the epidemiological context. Specifically, we expected that patterns of physical distancing and social contact limitations would decrease over time in response to lower infection rates and the relaxation of stringent measures implemented by public authorities at the time of data collection. In contrast, we expected emotional distancing to be less directly influenced by infection rates and policy stringencies.

Hypothesis 3 (H3): We hypothesized an overlap between trajectories. For instance, individuals showing higher (or lower) levels on physical distancing will be more likely to show higher (or lower) levels on social contact limitations and emotional distancing, over time. Importantly, we predicted that the amplitude of this overlap would differ across the three dimensions of social distancing. More precisely, we anticipated a stronger association between trajectories of physical distancing and social contact limitations.

Hypothesis 4 (H4): We hypothesized that men and younger people will be more likely to follow trajectories characterized by low levels of physical distancing and social contact limitations as they are less likely to adhere to social distancing rules in general. Additionally, we postulated that men and older people would be more likely to follow trajectories characterized by high levels of emotional distancing, given that they have less needs for social interactions, as compared to younger people and women.

Hypothesis 5 (H5): We hypothesized that individuals reporting higher levels of adherence to physical distancing and social contact limitations would experience higher loneliness and greater depression. Regarding emotional distancing, two hypotheses were contrasted: On one hand, emotional distancing should lead to poorer mental health due to the lack of social support. On the other hand, emotional distancing may not be associated with negative mental health outcomes if it emerges from people need to protect themselves from unwanted psychological distress.

Exploratory Analysis

We explored preliminary causal relationships between social distancing subtypes by investigating whether emotional distancing is a consequence of physical distancing and social contact limitations.

Method

This study complies with the APA ethical regulations for research on human subjects and all participants gave informed consent, as approved by the institutional review boards of the principal investigator (Project 2021-07). Raw data, syntax, questionnaires, and additional elements can be found in the online supplementary material (https://osf.io/fp5sw/).

Participants and Procedure

The initial sample comprised 6,026 French-speaking Belgian residents. Participants were recruited via Belgian online newspapers, mailing lists from universities, and social media platforms. To be consistent with the type of longitudinal analysis used and the detection of trajectory shapes, participants who completed less than three waves of data collection were removed. Based on these exclusion criteria, the final sample was composed of 1762 participants. The sample comprised 662 men and 1,100 women (62.4% women) age from 18 to 91 years old (M = 52.65; SD = 15.29). With regard to their education level, 9 (0.5%) participants reported having solely primary education or no schooling, 251 (14.2%) secondary education, 487 (27.6%) a bachelor's degree, and 887 (50.3%) a master's degree or a higher degree.[2] We gathered longitudinal data across six waves over 8 months. Surveys were administered every 3 weeks from April 1 to July 2, 2021, and each wave remained open for 8 days. Additionally, a sixth sample was collected 5 months after the primary survey ended, on November 25, 2021 (see Table 1 for data collection timetable and sociodemographic characteristics as well as Wollast, Schmitz et al., 2023 for more information). Three years after the main survey, we contacted the same participants, asking whether they would be willing to re-adopt social distancing measures in the context of a new pandemic (N = 841, see exploratory analysis below).

Measures

For the present study, we used the predictors (i.e., age and gender) collected at Wave 1, social distancing subtypes collected from Wave 1 to Wave 5, and mental health outcomes collected at Wave 6, 5 months after the end of the main survey. Participants were then recontacted 3 years later

[2] The education data was not available for 7.3% of participants.

Table 1. Timetable for seven waves of data collection

Waves	Starting date	End date	Intervals	*N*	% Women	Mean age
1	April 1, 2021	April 9, 2021	–	4112	56.9%	51.07 (14.96)
2	April 22, 2021	April 29, 2021	3 weeks	3047	59.7%	52.71 (15.08)
3	May 13, 2021	May 21, 2021	3 weeks	1835	62.0%	53.24 (15.25)
4	June 3, 2021	June 11, 2021	3 weeks	1706	63.1%	53.61 (15.20)
5	June 24, 2021	July 2, 2021	3 weeks	1584	62.4%	53.25 (15.16)
6	November 25, 2021	December 2, 2021	5 months	1866	60.1%	54.68 (14.56)
7	January 6, 2025	January 14, 2025	37 months	841	62.8%	57.60 (14.60)
Total	April 1, 2021	January 14, 2025	46 months	6026	57.4%	53.03 (14.97)

Note. The total represents the number of unique participants across all waves. Standard deviations for the variable age are presented in parentheses.

Table 2. McDonald's Omega coefficient for each variable as a function of data collection timepoint

Waves	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Emotional distancing	.80	.78	.81	.83	.84	–
Social contact limitations	.81	.81	.82	.84	.82	–
Physical distancing	.88	.90	.91	.91	.92	–
Loneliness	–	–	–	–	–	.88
Depression	–	–	–	–	–	.92

for Wave 7. All the items are available in the online supplementary material.

Physical Distancing, Social Contact Limitations, and Emotional Distancing

We used items from Wollast, Schmitz et al. (2023). Specifically, we relied on three items[3] for each dimension including physical distancing (e.g., "I am careful to keep my physical distance from others, even friends and family.", "If I have to leave the house, I make sure to maintain a minimum physical distance [1.50 m] from other people.", "I am physically distant from other people living outside my home."), social contact limitations (e.g., "I have social interactions outside of the people I live with. [reversed-coded]", "I socialize with people outside of my home. [reversed-coded]", "I avoid face-to-face social interactions with others."), and emotional distancing ("I am emotionally distant from others living outside of my home.", "I don't have much personal and intimate discussions with others living outside of my home.", "In general, I am an emotionally distant person with others."). Participants rated the extent to which each statement applied to them using a 1 (= *almost never*) to 5 (= *very often*) response scale. Ultimately, McDonald's Omega coefficients ranged from good to excellent for each of the social distancing measures at each time of data collection (see Table 2).

Loneliness

We measured loneliness using three items ("I feel left out", "I feel isolated from others", "I feel abandoned") on a scale from 1 (= *totally disagree*) to 5 (= *totally agree*) response scale from Hughes et al. (2004). McDonald's Omega coefficient was excellent (see Table 2).

Depressive Symptoms

We assessed depressive symptoms using five items (e.g., "I couldn't seem to experience any positive feeling at all", "I felt I wasn't worth much as a person") from the Depression, Anxiety and Stress Scale (DASS21; Crawford & Henry, 2003) using a 1 (= *totally disagree*) to 5 (= *totally agree*) response scale. McDonald's Omega coefficient was excellent (see Table 2).

Data Reduction

To test whether the three subtypes of social distancing – emotional distancing, physical distancing, and social contact limitations – are distinct constructs (Hypothesis 1), we performed confirmatory factor analyses (CFAs). Model fit was assessed using multiple fit indices (Tanaka, 1993), with the root mean square error of approximation (RMSEA) expected to be $\leq .08$, and the comparative fit index (CFI) expected to be $\geq .90$ (Byrne, 2004). No error terms were added to the models.

[3] The 7-item scales for physical distancing and social contact limitations developed by Wollast, Schmitz, et al. (2023) overlap, as demonstrated in their studies and confirmed in the present one. Specifically, we conducted a confirmatory factor analysis and examined the factor loadings for physical distancing, social contact limitations, and emotional distancing. Based on this analysis, we selected the three most optimal items – those with the strongest factor loadings for their respective dimensions. A review of these items confirmed that they effectively and conceptually capture the key constructs while avoiding the overlap present in the original 7-item versions (see Appendix for the final scale).

The results of the CFAs confirmed that the model distinguishing the three subtypes (Model A in Table 3) demonstrated excellent fit, with fit indices surpassing the conventional thresholds. In contrast, models that merged subtypes (Models B, C, D, and E) showed poorer fit, including Model B, which combined physical distancing and social contact limitations. Model B demonstrated a significant decrease in both CFI and RMSEA, with RMSEA exceeding the conventional threshold (> .08), providing strong evidence for the validity of the three distinct subtypes and successfully confirming Hypothesis 1.

Furthermore, all standardized factor loadings in Model A were statistically significant and above the conventional threshold (< .71 for all), further supporting the distinctiveness of the three subtypes. As anticipated, emotional distancing was positively correlated with both social contact limitations ($r = .21$, $p < .001$) and, to a lesser extent, physical distancing ($r = .10$, $p < .001$). In contrast, physical distancing and social contact limitations were highly correlated ($r = .85$, $p < .001$).

Data Analysis

The following statistical analyses were divided into four steps: (1) identifying trajectories for the three subtypes of social distancing (Hypothesis 2), (2) exploring the conditional probabilities between the three subtypes (Hypothesis 3), (3) examining the role of sociodemographic variables (i.e., gender and age) in distinguishing trajectories (Hypothesis 4), and (4) analyzing the associations between trajectories and mental health outcomes (Hypothesis 5). All statistical analyses were performed using SAS 9.4 (SAS Institute, Inc., Cary, NC, USA, 2016) and SPSS Statistics 29 (IBM Corp, 2021). We used the PROC TRAJ package in SAS for group-based trajectory modeling. Figure 2 summarizes the data analysis plan.

Results

Identifying Heterogeneity in Latent Trajectories

In an initial step to test Hypothesis 2, we employed a group-based approach to identify the trajectories of social distancing subtypes (Jung & Wickrama, 2008). This multinomial modeling method discerns distinct clusters of individual trajectories within the population and characterizes the individuals within these trajectory groups (Nagin, 2010).

To model the trajectories, we used the CNORM (Censored Normal) distribution, which allows the underlying latent variable to be normally distributed. This distribution permits values outside the observed scale bounds, providing flexibility in capturing the potential for extreme values, even though such values are not directly observed in the data.

Based on model fit statistics, we estimated between 1 and 5 latent classes (i.e., trajectory groups) from Wave 1 (April 1, 2021) to Wave 5 (June 24, 2021) and adjusted the trajectory shapes according to a polynomial function of time (constant, linear, quadratic, cubic). Following D'Unger et al. (1998), we used the Bayesian Information Criterion (BIC) to select the optimal model, with BIC values closer to zero indicating better model fit. The chosen model then assigns individuals to trajectory groups based on the maximum posterior probability (for a similar and more detailed analysis strategy, see Wollast, Lacourse et al., 2023).

Table 4 presents the BIC scores for models with different numbers of trajectory groups and shapes for the three subtypes. Figure 3 illustrates the trajectory patterns for each group, along with their 95% confidence intervals (CIs).

According to the BIC criterion, a four-group model (Model 4, see Table 4) was identified as the best fitting model for each subtype. Models with five trajectory groups included trajectories with too few participants, so we chose the four-group model to ensure each latent cluster had enough participants to provide sufficient power for subsequent analyses.

In line with Hypothesis 2, the four identified trajectories for each subtype (see Model 4) followed low (red), moderate-low (green), moderate-high (blue) and high (black) levels of physical distancing, social contact limitations, and emotional distancing (see Figure 3). More specifically, and as expected, for each type, a distinct cluster of individuals demonstrated a high level of adherence. This high adherence trajectory group comprised 22.4% (physical distancing), 16.4% (limitations of social contact), and 9.4% (emotional distancing) of the sample. This high trajectory was characterized by a negative quadratic function (for both physical distancing and social contact limitations, see Table 4), suggesting that a majority of participants have high levels of adherence that slightly fluctuate but also decrease over time (see Figure 3). Interestingly, the four emotional distancing trajectories, including the high trajectory, were characterized by a constant function, indicating that the average levels of emotional distancing remained highly stable over time.

A similar pattern emerged for individuals demonstrating a low level of adherence, comprised 9.7% (physical distancing), 10.1% (limitations of social contact), and 11.2% (emotional distancing) of the sample. These low trajectories were characterized by a negative linear function for physical distancing and social contact limitations, suggesting that individuals who have low levels of adherence also experience a similar decrease over time (see Figure 3). Note that again,

Table 3. Comparisons of concurrent models

Model	χ^2	*df*	*CFI*	*RMSEA*	Factor loadings
A. 3 latent factors (ED vs SCL vs PD)	**182.34**	**24**	**.969**	**.073**	**.71–.87**
B. 2 latent factors (ED vs SCL and PD)	353.71	26	.933	.101	.62–.85
C. 2 latent factors (SCL vs ED and PD)	1186.74	26	.757	.189	.05–.87
D. 2 latent factors (PD vs ED and SCL)	1162.82	26	.733	.187	.12–.87
E. 1 latent factor (ED and SD and SCL)	1281.04	27	.705	.193	.06–.85

Note: ED = Emotional distancing; SD = Social contact limitations; PD = Physical distancing.

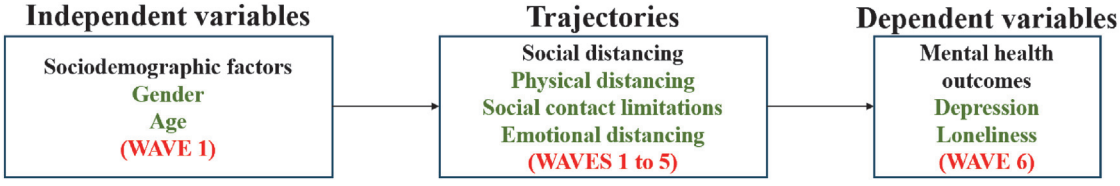

Figure 2. Data analysis plan.

Table 4. Bayesian information criterion (BIC) for selection of models

	Model	*K*	Behavior	Order	BIC
Trajectories of physical distancing, social contact limitations, and emotional distancing	1	2	PD	3, 3	−9611.98
	2	3	PD	3, 3, 3	−8829.79
	3	4	PD	3, 3, 3, 3	−8255.69
	4	**4**	**PD**	**1, 1, 2, 2**	**−8234.99**
	1	2	SCL	3, 3	−9737.14
	2	3	SCL	3, 3, 3	−9008.89
	3	4	SCL	3, 3, 3, 3	−8722.69
	4	**4**	**SCL**	**1, 1, 2, 2**	**−8706.92**
	1	2	ED	3, 3	−8623.47
	2	3	ED	3, 3, 3	−8152.11
	3	4	ED	3, 3, 3, 3	−7810.06
	4	**4**	ED	**0, 0, 0, 0**	**−7774.82**

Note. *K* = Number of trajectory groups. PD = Physical distancing. LSC = Social contact limitations. ED = Emotional distancing. The order indicates whether the trajectory was fit with a constant (0), linear (1), quadratic (2), or cubic (3) function. For each *k* level, we tested all model combinations possible including all different polynomial functions. For clarity, we only report the most relevant models (baseline model and best model for each *k* level).

this low trajectory for emotional distancing was characterized by a constant function indicating stability over time.

Ultimately, the moderate-low (20.3% for physical distancing, 27.6% for social contact limitations, 45.7% for emotional distancing) and moderate-high (47.5% for physical distancing, 45.9% for social contact limitations, 33.7% for emotional distancing) trajectories contained the majority of participants. The moderate-low trajectories of social contact limitations and physical distancing were characterized by a negative linear function, suggesting that levels of adherence linearly decreased over time. The moderate-high trajectories were characterized by a negative quadratic function, suggesting that these participants had levels of adherence that slightly fluctuated but mainly decreased over time (see Figure 3). Again, these two moderate trajectories for emotional distancing were characterized by a constant function, indicating stability over time.

In sum, the average levels of adherence to social contact limitations and physical distancing slightly decreased over time regardless of the initial adherence level, whereas the emotional distancing trajectory groups remained highly stable over time.

Conditional Probabilities

In a second step (Hypothesis 3), we tested the conditional probability (i.e., associations) of individuals belonging to specific trajectory groups on one specific subtype of social distancing to be assigned to similar groups on the two other subtypes. Because we relied on three subtypes,

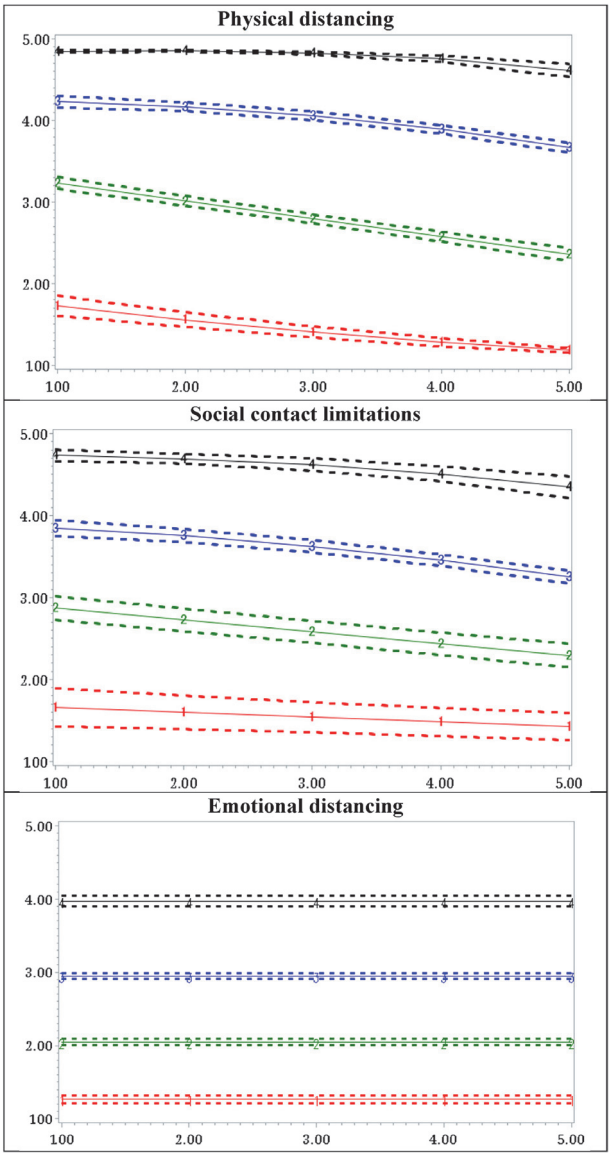

Figure 3. Pattern of trajectories with 95% CI for physical distancing, social contact limitations, and emotional distancing as a function of trajectory groups. The *x*-axis (horizontal line) represents the five waves of data collection whereas the *y*-axis (vertical line) represents the five levels of the response scale.

we conducted three paired analyses. Table 5 shows the probabilities of co-occurrence of a specific trajectory group conditional to one of the two others. Specifically, the large diagonal elements of the probability matrices (in bold in Table 5) indicate that there is considerable overlap between these trajectories. For instance, the majority of individuals who follow the lowest level of adherence to physical distancing also follow the lowest level of adherence to social contact limitations (76.1%), and vice versa. In line with Hypothesis 3, although we observed significant associations between trajectory groups of emotional distancing and the two other subtypes, these associations were weak (from 14% to 54% overlap). This suggests that trajectories of emotional distancing are only loosely associated with trajectories of physical distancing and social contact limitations, over time. These results are confirmed in Table 6 that shows the means, standard deviations and correlations of physical distancing, social contact limitations, and emotional distancing, for each wave of data collection. Note however that these associations are greater between emotional distancing and social contact limitations than with physical distancing.

Associations Between Trajectories and Sociodemographic Factors

In step 3 (Hypothesis 4), we used the RISK function of PROC TRAJ from SAS to determine whether the trajectory membership probabilities for the reference category (i.e., Low trajectory group) could be distinguished from other trajectory groups as a function of age and gender.

Table 7 reports the factors associated with the probability of group membership as a function of trajectory groups. In line with Hypothesis 4, results evidenced that women engage over time significantly more often in physical distancing and social contact limitations, and less often in emotional distancing as compared to men. Further, and as expected, we found that younger men are more likely to follow trajectories characterized by low levels of physical distancing and social contact limitations as compared to older people. However, there were no significant effect of age between the low and high emotional distancing trajectories.

Associations Between Trajectories and Mental Health Outcomes

In step 4 (Hypothesis 5), we used the OUTCOME function of PROC TRAJ from SAS to test the relation between subtypes of social distancing trajectory groups and two mental health indicators, loneliness and depression, measured at Wave 6. We then relied on the %TRAJTEST macro add-on to conduct Wald tests for equality of coefficients allowing us to test equality of growth parameters across the four groups (i.e., comparing each trajectory coefficient with each other), for both outcome variables separately (Jones & Nagin, 2007). Table 8 reports these comparisons as well as estimates and standard errors for all trajectory groups.

Consistent with Hypothesis 5, we found that individuals in the lowest trajectories of adherence to physical distancing and social contact limitations reported lower levels of

Table 5. Co-occurrence of emotional distancing, social distancing, and physical distancing

Group	Low	Moderate-low	Moderate-high	High
Probability of EM conditional on SCL				
High EM	4.8%	5.7%	8.7%	**18.2%**
Moderate-high EM	15.9%	25.0%	**39.4%**	40.9%
Moderate-low EM	49.8%	**54.2%**	45.6%	31.3%
Low EM	**29.5%**	15.1%	6.3%	9.6%
Probability of EM conditional on PD				
High EM	7.9%	6.7%	8.8%	**13.6%**
Moderate-high EM	18.3%	27.6%	**38.6%**	36.2%
Moderate-low EM	54.4%	**52.9%**	45.0%	37.1%
Low EM	**19.4%**	12.8%	7.6%	13.1%
Probability of PD conditional on SCL				
High SCL	0.0%	0.4%	17.4%	**85.5%**
Moderate-high SCL	0.8%	31.9%	**79.4%**	13.8%
Moderate-low SCL	23.1%	**60.8%**	3.2%	0.7%
Low SCL	**76.1%**	6.9%	0.0%	0.0%

Note. EM = Emotional Distancing; PD = Physical Distancing; SCL = Social Contact Limitations.

Table 6. Corresponding means and correlation matrix of emotional distancing, social contact limitations, and physical distancing

Wave	Emotional distancing	Social contact limitations	Physical distancing	Mean (*SD*)
Wave 1				
Emotional distancing	1	0.18**	0.09**	2.41 (0.91)
Social contact limitations	–	1	0.71**	3.48 (1.04)
Physical distancing	–	–	1	3.91 (1.02)
Wave 2				
Emotional distancing	1	0.16**	0.08**	2.45 (0.87)
Social contact limitations	–	1	0.71**	3.41 (1.04)
Physical distancing	–	–	1	3.82 (1.08)
Wave 3				
Emotional distancing	1	0.21**	0.12**	2.45 (0.87)
Social contact limitations	–	1	0.72**	3.29 (1.01)
Physical distancing	–	–	1	3.72 (1.08)
Wave 4				
Emotional distancing	1	0.24**	0.15**	2.47 (0.88)
Social contact limitations	–	1	0.73**	3.16 (1.03)
Physical distancing	–	–	1	3.58 (1.13)
Wave 5				
Emotional distancing	1	0.24**	0.14**	2.45 (0.87)
Social contact limitations	–	1	0.72**	2.98 (1.01)
Physical distancing	–	–	1	3.39 (1.16)

Note. **Correlation is significant at the .001 level. *SD* = Standard deviation.

loneliness and depression compared to those in the highest adherence trajectories.

Regarding emotional distancing, participants high in emotional distancing experienced *similar* levels of depression as compared to participants low in emotional distancing. Interestingly, participants high in emotional distancing experienced *lower* levels of loneliness. Taken together, these results suggest that the different subtypes of social distancing affect mental health differently.

Exploratory Analysis

Given the discrepancies observed between emotional distancing on one hand, and physical distancing and social

Table 7. Factors associated with the probability of group membership as a function of trajectories

Parameter	Estimate	Standard error	T for H0	Prob > |T|
Emotional distancing				
Low vs. Moderate Low				
Constant	**0.62567**	**0.30506**	**2.051**	**0.0403**
Age	0.01152	0.00591	1.950	0.0512
Gender	**0.83938**	**0.24355**	**3.446**	**0.0006**
Low vs. Moderate High				
Constant	−0.72837	0.32467	−2.243	0.0249
Age	**0.02544**	**0.00610**	**4.172**	***p* < .0001**
Gender	**1.62848**	**0.23925**	**6.807**	***p* < .0001**
Low vs. High				
Constant	**−1.39970**	**0.40592**	**−3.448**	**0.0006**
Age	0.00887	0.00760	1.168	0.2429
Gender	**2.16659**	**0.27964**	**7.748**	***p* < .0001**
Social contact limitations				
Low vs. Moderate Low				
Constant	0.14845	0.33887	0.438	0.6614
Age	**0.02606**	**0.00718**	**3.632**	**0.0003**
Gender	**−0.74913**	**0.21386**	**−3.503**	**0.0005**
Low vs. Moderate High				
Constant	−0.45141	0.31812	−1.419	0.1559
Age	**0.04659**	**0.00670**	**6.958**	***p* < .0001**
Gender	**−0.58598**	**0.19455**	**−3.012**	**0.0026**
Low vs. High				
Constant	**−2.00745**	**0.38498**	**−5.214**	***p* < .0001**
Age	**0.05709**	**0.00777**	**7.344**	***p* < .0001**
Gender	**−0.72010**	**0.22285**	**−3.231**	**0.0012**
Physical distancing				
Low vs. Moderate Low				
Constant	0.45710	0.32794	1.394	0.1634
Age	**0.01229**	**0.00650**	**1.890**	**0.0588**
Gender	**−0.74239**	**0.20200**	**−3.675**	**0.0002**
Low vs. Moderate High				
Constant	0.23708	0.29547	0.802	0.4224
Age	**0.03195**	**0.00577**	**5.538**	***p* < .0001**
Gender	**−0.59805**	**0.17719**	**−3.375**	**0.0007**
Low vs. High				
Constant	**−1.08890**	**0.34791**	**−3.130**	**0.0018**
Age	**0.04491**	**0.00656**	**6.842**	***p* < .0001**
Gender	**−1.01354**	**0.20240**	**−5.008**	***p* < .0001**

Note. Bold font indicates statistical significance.

contact limitations on the other hand, we explored whether emotional distancing is a consequence of physical distancing and social contact limitations (see Figure 1). To do so, we used the RISK function of PROC TRAJ from SAS software to determine whether the trajectory membership probabilities for the reference category (i.e., Low levels of emotional distancing trajectory groups) could be distinguished from other trajectory groups as a function of physical distancing (Wave 1) and social contact limitations (Wave 1), controlling for age and gender (see Table 9). Results showed that social contact limitations, *but not* physical distancing was associated with emotional distancing when all variables were considered simultaneously.

To replicate these effects, we collected an additional wave of data in January 2025 by contacting all participants 3 years after the main survey, within the same pool of French-speaking Belgian participants. The sample consisted of 841 participants (62.8% of women). The mean age of

Table 8. Estimates, standard errors, and Wald tests for life satisfaction and depression as a function of social distancing subtypes trajectory groups

	Loneliness	Depression
Low *physical distancing*	**2.17[a] (.11)**	**2.10[a] (.11)**
Moderate-low	2.44[b] (.08)	2.23[a] (.08)
Moderate-high	2.32[b] (.05)	2.30[b] (.05)
High	2.41[b] (.08)	2.45[b] (.08)
Low *social contact limitations*	**2.17[a] (.10)**	**2.11[a] (.09)**
Moderate-low	2.44[b] (.07)	2.41[b] (.06)
Moderate-high	2.32[b] (.04)	2.29[b] (.05)
High	2.41[b] (.07)	2.57[c] (.08)
Low *emotional distancing*	2.30[a] (.11)	2.35[a] (.09)
Moderate-low	2.33[a] (.05)	2.37[a] (.05)
Moderate-high	2.33[a] (.06)	2.34[a] (.06)
High	**2.05[b] (.12)**	2.27[a] (.11)

Note. Standard errors are presented in parentheses. Estimates with differing subscripts within columns are significantly different at the $p < .05$ using Wald tests and refer to differences between trajectory groups.

participants was 57.6 years (SD = 14.6), with ages ranging from 21 to 93. With regard to their education level, 4 (0.5%) participants reported having solely primary education or no schooling, 85 (10.1%) reported secondary education, 234 (27.8%) reported a bachelor's degree, and 518 (61.6%) reported having a master's degree or a higher degree.

In this follow-up data collection, we asked participants to assess how they would respond in the context of a future pandemic, specifically regarding their likelihood of engaging in physical distancing, social contact limitations, and emotional distancing. Participants responded to single items for physical distancing ("In the context of a new pandemic, how likely would you be to maintain a certain physical distance from others (1.5 meters)?") and social contact limitations ("In the context of a new pandemic, to what extent would you limit your social contacts to the maximum number of people allowed?"). For emotional distancing, the same three items were reused but adapted to the future ("In the context of a new pandemic, I will be emotionally distant from others living outside of my home.").

We then tested a model that included the trajectories of social distancing subtypes during the pandemic (from Wave 1 to Wave 5) and 3 years after the pandemic (Wave 7). The model is presented in Figure 4. As in previous analyses, we used the OUTCOME function of PROC TRAJ in SAS. Interestingly, we found that adherence to social distancing during the pandemic was not associated with adherence in the context of a new pandemic (all associations: $p > .05$).

To go further, we conducted a regression analysis to examine whether physical distancing and social contact limitations were associated with emotional distancing in a future pandemic context (all variables measured at Wave 7), while controlling for age and gender. The model was significant, $F(5, 836) = 54.97$, $p < .001$, with an adjusted R^2 of .20. As expected, we replicated the findings from the main survey: Social contact limitations ($B = 0.28$, $p < .001$) and, to a much lesser extent, physical distancing ($B = 0.09$,

Table 9. Factors associated with the probability of group membership as a function of trajectory groups for emotional distancing

Parameter	Estimate	Standard error	T for H0	Prob > |T|
Low (Reference category)	–	–	–	–
Low vs. Moderate Low				
Constant	0.42464	0.46935	0.905	0.3656
Physical distancing	−0.13856	0.14477	−0.957	0.3386
Social contact limitations	0.26024	0.14781	1.761	0.0784
Age	0.00993	0.00741	1.341	0.1801
Gender	**0.77308**	**0.28588**	**2.704**	**0.0069**
Low vs. Moderate High				
Constant	**−1.83810**	**0.51939**	**−3.539**	**0.0004**
Physical distancing	−0.07073	0.15257	−0.464	0.6430
Social contact limitations	**0.46371**	**0.15314**	**3.028**	**0.0025**
Age	**0.02226**	**0.00772**	**2.883**	**0.0040**
Gender	**1.64209**	**0.28397**	**5.783**	***p* < .0001**
Low vs. High				
Constant	**−2.94074**	**0.68684**	**−4.282**	***p* < .0001**
Physical distancing	−0.14792	0.19775	−0.748	0.4545
Social contact limitations	**0.72018**	**0.19688**	**3.658**	**0.0003**
Age	0.00257	0.00969	0.265	0.7912
Gender	**2.06698**	**0.33253**	**6.216**	***p* < .0001**

Note. Bold font indicates statistical significance.

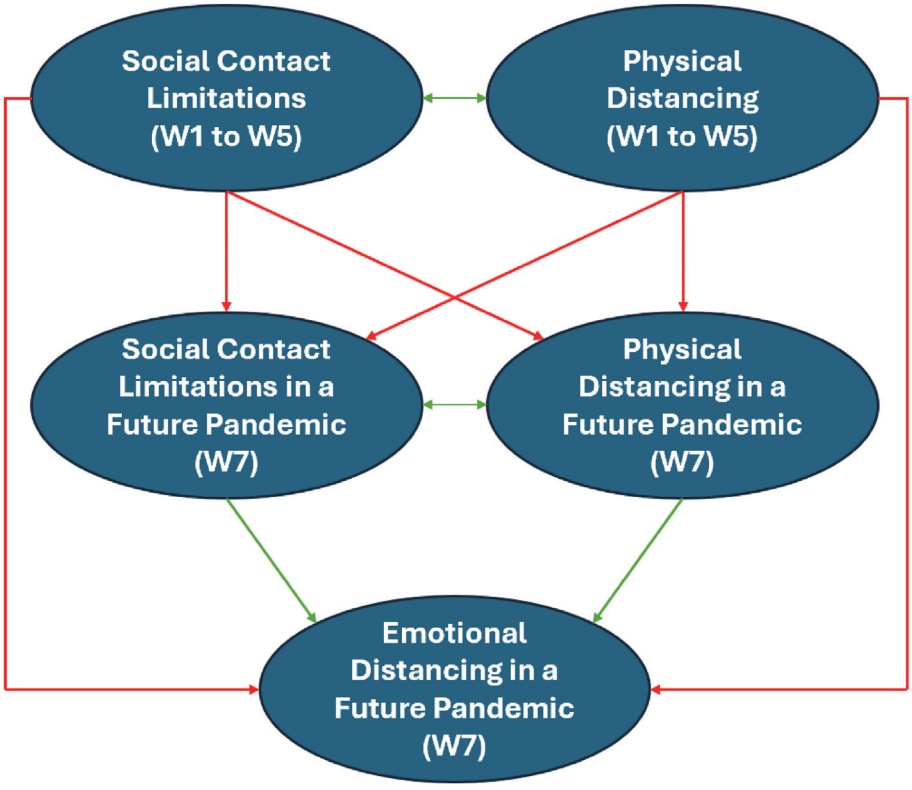

Figure 4. Fully tested model. Paths in green are significant, whereas paths in red are not.

p = .019) were associated with emotional distancing when all variables were considered simultaneously. These results further support the conclusion that social contact limitations and physical distancing have distinct implications for emotional distancing, with social contact limitations exhibiting a stronger and more consistent association across both studies.

Discussion

This longitudinal research provides a more precise taxonomy for the concept of social distancing by highlighting three related but distinct subtypes: physical distancing, social contact limitations, and emotional distancing. This new taxonomy has been both conceptually and statistically validated in the present paper and can assist other experts in assessing the construct of social distancing more accurately in future studies or discussions. The final validated scales for the three subtypes of social distancing are provided in the Appendix at the end of the article.

Built on previous research (Das Gupta & Wong, 2020; Svoboda, 2021; Wasserman et al., 2020), we propose a clear taxonomy to distinguish these subtypes. Specifically, physical distancing involves keeping 1 to 2 meters (i.e., 3–6 feet) distance between individuals, social contact limitations entails limiting the number of in-person contacts and time spent in-person with others, and emotional distancing serves as a protective mechanism against unwanted psychological distress related to the crisis, involving individuals emotionally avoiding others without necessarily experiencing negative mental health outcomes. We found that physical distancing and social contact limitations are strongly intertwined and occur more frequently than emotional distancing, the latter manifesting as an extreme form of social contact limitations, for some individuals. Taken together, we argue that these three forms of social, physical, and emotional separation contribute to individuals following social distancing to reduce the transmission of the disease.

In line with Hypothesis 2, we identified groups of individuals following persistently low, moderate-low, and moderate-high, and high, levels of social distancing subtypes over time. As expected, patterns of physical distancing and social contact limitations were context-dependent, highly similar, with a slight decrease over time that corresponded to lower levels of infections and release of the stringent social distancing measures taken by public authorities in Belgium (see Figures 5 and 6, Schmitz, 2022a, b).

Interestingly, and after comparing many concurrent models for emotional distancing, all trajectories within each model were characterized by a constant function, indicating that emotional distancing is highly stable over time.

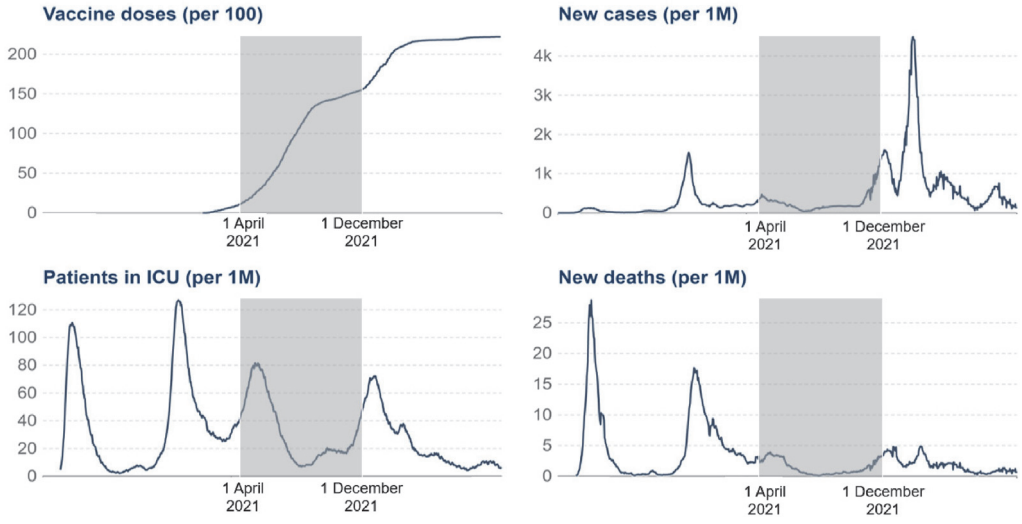

Figure 5. Vaccine doses, daily new confirmed cases, ICU patients, and death cases in Belgium. Source: adapted from Mathieu et al. (2023). The grey area indicates the period of our data collection.

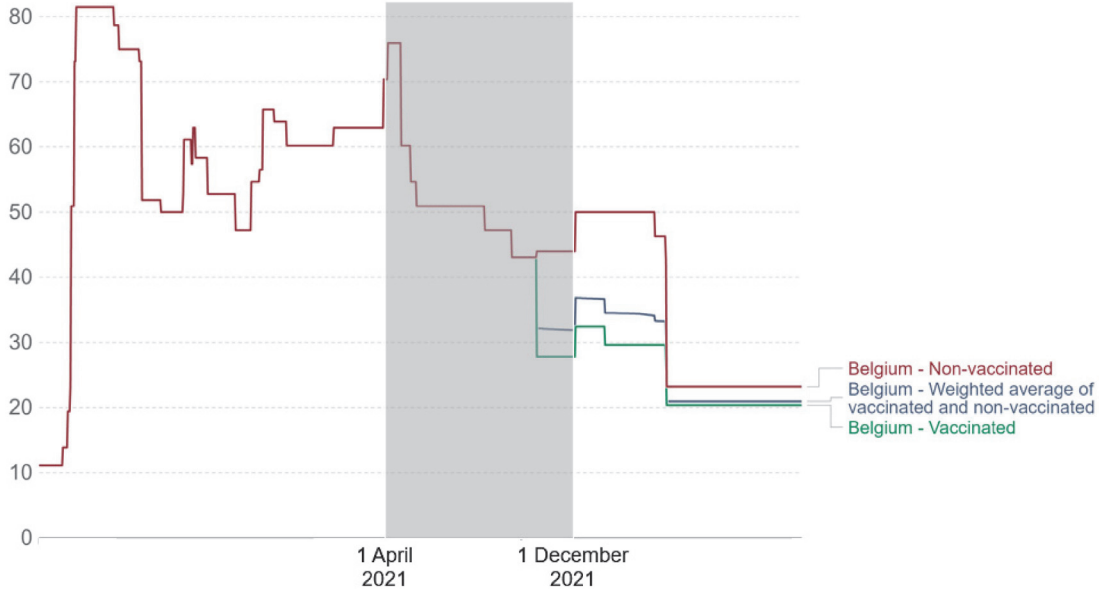

Figure 6. The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). Source: adapted from Mathieu et al. (2023). The grey area indicates the period of our data collection.

This supports the idea that emotional distancing is rather an actionable trait. This personality trait may be activated among specific clusters of individuals who need to protect themselves from unwanted psychological distress caused by the pandemic context. More precisely, we consider emotional distancing as an extreme form of social distancing, and especially a characteristic that will be become saliant among people with high levels of social contact limitations. This extreme manifestation of social contact limitations occurs less frequently, given that public health recommendations tend to promote physical and social separations rather than an emotional one (WHO, 2020). Having said that, we acknowledge that the way we measured emotional distancing might not align with other studies that conceptualized this construct differently (Dotson et al., 2022). In sum, our findings suggest that people engage differently in social distancing. To investigate this possibility, we explored the role of sociodemographic factors and mental health in social distancing subtypes over time.

In line with Hypothesis 3, we found that men and younger people's probability to belong to low trajectories of physical distancing and social contact limitations was

significantly higher than women and older people. This is consistent with previous findings showing that women and older people engage more often than men do in social distancing rules (Dekeyser et al., 2023; Guo et al., 2021). It has been found that the meaning of these rules play an important role, especially among men such that respecting sanitary behaviors can be associated with a sign of fragility and weakness, or as an infringement on their independence and sense of freedom (Howard, 2021).

Interestingly, although women are more likely to respect physical distancing rules, we found that men's probability to belong to high trajectories of emotional distancing was significantly higher, as compared to women. This is consistent with previous findings showing that women have more close contacts than their counterparts do because it is a rather normative behavior for men and a rare one for women. These results came in line with other studies demonstrating that men may see themselves remaining in isolation for longer periods than women, because they tend to give less importance to interpersonal relationships than women (Yang & Girgus, 2019).

To go further, we explored the associations between subtypes of social distancing and mental health outcomes. First, built on Wollast, Schmitz, et al. (2023)'s work, we found that trajectory groups with higher levels of physical distancing and social contact limitations were associated with greater levels of loneliness and depression. This supports the idea that limiting social contacts and respecting physical distancing, create a physical and social distance with others, which may be challenging as they push individuals against their deep instinct for togetherness and social needs. In this context, many COVID-19 studies have shown that avoidant behaviors such as social contact limitations and physical distancing led to high levels of loneliness (Killgore et al., 2020), social isolation (Williams et al., 2021), negative emotions (Zhu et al., 2021), and psychological distress such as depression and anxiety (Peterson et al., 2021).

Interestingly, we found that participants belonging to trajectory groups with higher levels of emotional distancing experienced similar levels of depression but *lower* levels of loneliness. These findings suggest that emotional distancing, as we measured it, does not seem to be an unintended consequence of stringent adherence to social distancing rules, resulting in poor mental health. Instead, during the COVID-19 pandemic, individuals who actively engaged in emotional distancing may have participated less in personal and intimate discussions with people living outside of their home. This supports the idea that emotional distancing can be activated among some individuals as a protective mechanism against unwanted psychological distress related to the crisis. Consequently, emotional distancing may manifest as a form of emotional detachment that helps protect some people from potential deleterious consequences in a stressful situation that requires social distancing.

Throughout the analysis, we observed nearly identical patterns between physical distancing and social contact limitations, questioning whether these two subtypes overlap and simply tap the same construct. During the data collection period in Belgium, social distancing rules loosened but remained significant for the population. Closing schools, workplaces, universities, restaurants, and other social places inevitably created strong physical and social separations between people. Consequently, it is not surprising that patterns of physical distancing and social contact limitations were strongly overlapping during that period, given the significantly reduced social freedom. However, the CFA confirmed their distinctiveness and their effects on emotional distancing in exploratory analysis were different; social contact limitations were more strongly associated with emotional distancing when physical distancing was taken into account. Social contact limitations, which involves reducing or restricting interactions with others, may lead to increased feelings of social isolation and detachment, thereby directly influencing emotional distancing. The reduction in face-to-face interactions and the potential lack of emotional support from social networks could contribute to a sense of emotional distance from others. On the other hand, physical distancing, which primarily involves maintaining a certain physical distance from others, may not necessarily carry the same emotional consequences. While it may restrict the ability to engage in close physical contact, it does not inherently disrupt the quality or depth of emotional connections in the same way that limiting social interactions does. Therefore, it is plausible that social contact limitations, through their impact on interpersonal relationships and social connectedness, are more strongly associated with emotional distancing than physical distancing, which is primarily a behavioral or spatial adjustment. This distinction highlights the importance of considering the nature of the distancing behavior when examining its emotional and psychological outcomes.

In sum, despite these statistical nuances, and following the recommendations in the literature on social distancing (e.g., Aminnejad & Alikhani, 2020; Ornell et al., 2020), we maintain that physical distancing, social contact limitations, and emotional distancing are all integral components of the broader concept of social distancing.

One limitation of our study is the potential misinterpretation of the assessed social distancing behaviors as being directly related to the COVID-19 pandemic. While the data collection occurred during a period when social distancing measures were prevalent due to the pandemic, and the focus of the entire survey was COVID-19 related phenomena, it is true that our survey items did not explicitly mention COVID-19, the pandemic, or motivations related

to avoiding illness or preventing disease transmission. Despite this lack of explicit reference to the COVID-19 pandemic, we believe that participants' responses to these items were strongly related to that specific context. From April to July 2021, Belgium was still deeply affected by the pandemic, especially when the data collection started. Future studies will be needed to clarify the context of social distancing behaviors by explicitly referencing the pandemic or motivations related to disease prevention in their survey items to better capture the relationship between the behaviors and the pandemic context.

In conclusion, we argue that social distancing may manifest into at least three different levels; two highly related ones including a physical separation (physical distancing) and a social separation (limitations of social contact), the latter leading to an extreme and stable one characterized by an emotional separation (emotional distancing). Our work invites scholars, practitioners, and policymakers to view social distancing not as a monolithic concept but as a spectrum of behaviors with varied implications for public health and mental well-being. This new taxonomy has been both conceptually and statistically validated in the present paper and can assist other experts in assessing the construct of social distancing more accurately in future studies or discussions.

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Appendix

Table A1. Items of physical distancing, social contact limitations, and emotional distancing

From 1 (= *almost never*) to 5 (= *very often*)
Physical distancing:
I am careful to keep my physical distance from others, even friends and family.
If I have to leave the house, I make sure to maintain a minimum physical distance [1.50 m/3–6 feet] from other people.
I am physically distant from other people living outside my home.
Social contact limitations:
I have social interactions outside of the people I live with. [reversed-coded]
I socialize with people living outside my home. [reversed-coded]
I avoid face-to-face social interactions with others.
Emotional distancing:
I am emotionally distant from others living outside of my home.
I don't have much personal and intimate discussions with others living outside of my home.
In general, I am an emotionally distant person with others.

