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Lockdown Young Adult Concerns Scale (LYACS): The Development and Validation Process

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Abstract

Background: The COVID-19 pandemic as well as the social, relational, and economic transformations of the lockdown had a strong traumatic impact on the mental health of the word population, even more so on specific targets such as young adults. The spread of what was an unknown virus and the lockdown experience have raised concerns for the preservation of people's physical and mental health and their private, relational, and work life.

Objectives: The current study presents the construction, development, and validation process of the *Lockdown Young Adult Concerns Scale* (LYACS), an instrument assessing the level of two principal concerns during the pandemic lockdown, i.e., Loss of Life Control (CLLC) and Infection/Contagion (CIF).

Methods: After a pilot study that defined the dimensions, selected the items, and carried out Exploratory Factor Analysis (EFA) on a sample of 100 subjects (M = 24; DS = 3.9), a new sample of 259 Italian young adults (ages 18-35 yrs.; *M* = 24; *SD* = 3.8) was used to assess the psychometric validity of LYACS through Confirmatory Factor Analysis (CFA), reliability, convergent and divergent validity. Further descriptive analyses of the final version of scale as well as Two-way Analyses of Variance (ANOVA) on selected sociodemographic variables were conducted.

Results: The outcome of Confirmatory Factor Analysis, which resulted in high goodness of fit (χ^2/df = 2.0; GFI = .98; TLI = .98; RMSEA = .06; SRMR = .04), supports two identifiable factors reflecting the theoretically-based constructs of LYACS, thus supporting the EFA results. Furthermore, internal consistency as well as convergent and divergent validity analyses allow the scale to be considered a reliable and valid instrument for the present investigation. Finally, variance analysis shows that there are significant differences among the factor levels regarding gender, occupation, perception of the home space during lockdown, and having/not having worked on Concern about Loss of Life Control (CLLC), and between gender and confinement cohabitation on Concern about Infection/Contagion (CIF).

Conclusion: Overall, the reported results show good psychometric proprieties for the scale and shed new light on how Italian young adults lived the COVID-19 pandemic.

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1. Introduction

The health, economic, and socio-relational transformations since the outbreak of the Covid-19 pandemic and their impact on mental well-being have made this experience a global event with traumatic potential (e.g., Horesh & Brown, 2020; Viscuso & Mangiapane, 2020; O' Donnell & Greene, 2021; De Rosa, 2021; De Rosa & Regnoli, 2022). The effects of the pandemic on the mental health of the general population are now a well-established fact (e.g., Brooks et al., 2020; Qiu et al., 2020), and several studies have reported the increase in varied forms of psychological distress in particularly vulnerable developmental targets (e.g., Commodari et al., 2021; Lacatena & Sommantico, 2022; Mansfieldet al., 2022; Raihan, 2021; Procaccia et al., 2022; Rollè et al., 2022; Theberath et al., 2022; Varma et al., 2021) such as young adults whose psychological distress has resulted in an exponential increase in internalizing and externalizing sphere symptoms (e.g., Benedetto et al., 2022; Cao et al., 2020; Charles et al., 2021; Hoyt et al., 2021; Parola et al., 2020; Regnoli et al., 2022; Shanahan et al., 2020). The duration of the quarantine, emotional states of boredom and frustration during the lockdown, and social restrictions appear to be the main causes of the increased psychological distress in youths (e.g., Cellini et al., 2020; Qiu et al., 2020).

The evolutionary tasks of this chronologically broadening and increasingly articulated phase of the life cycle (e.g., Aleni Sestito & Sica, 2016; Arnett, 2007; Hendry & Kloep, 2010) seem to have been hindered by the pandemic event, probably also due to a kind of psychic fragilization related to specific features of hypermodernity (e.g., Côtè & Bynner, 2008; Kaës, 2012; Lasch, 1981). The culture of omnipotence, control, urgency, and performance go hand in hand with a drastic reduction in the formative experience of the limit. Therefore, encounters with the frustrations and physiological obstacles that punctuate the path of growth are likely to become destabilizing, losing their formative connotation; at the same time, conditions of job uncertainty and precariousness affect the ability to project oneself into the future and preserve a positive representation of it (e.g., Chicchi, 2021; De Rosa, 2021; Kaës, 2012, 2014; Osorio Guzmàn, Regnoli et al., 2022; Parrello, 2018; Santangelo et al., 2018; Torija et al., 2016). This combination of factors seems to have favored psychic unpreparedness for the pandemic and the limitations it imposed (e.g., De Rosa, 2021; De Rosa & Regnoli, 2022; Hoyt et al., 2021).

The lockdown period was characterized by increased concerns about one's physical and mental health, one's personal and work life, and economic and social dimensions (e.g., Ahorsu et al., 2020; Asmundson & Taylor, 2020; Lee et al., 2020; McKinlay et al., 2021). However, concerns defined as "a chain of thoughts and images, negatively affect-laden and relatively uncontrollable" can impair, when excessive, the search for a resolution to complex problems leading to an increase in anxiety and depressive symptoms (Borkovec et al., 1983). Precisely

because of the complexity of this construct, research has highlighted the adaptive role of concern to the extent that it can, as a cognitive process, support the direction of thoughts toward problem-solving (Szabò & Lovibond, 2002); conversely, however, when concern becomes excessive and persistent, it can hinder problem-solving and, at the same time, weaken physical and mental health (e.g., Holaway et al., 2006; Sweeney, 2018).

In young adults, the disruption of ongoing social and academic activities, the obligation to put life goals and interests on standby, and severe restrictions on personal freedom were accompanied by experiences of helplessness and loss of control over life, fostering a passive mode of coping with the pandemic and increased levels of concern (e.g., Gori et al., 2021; Maltese, 2021; McKinlay et al., 2021). The inability to maintain control over one's life, in stark contrast to the hyper-modern culture of control, was found to be a negative variable that affected the psychological well-being of young adults, impairing their ability to plan personal goals and project themselves into a positive future (e.g., Delli Zotti et al., 2020; Lee et al., 2020). On the contrary, in line with perceived control theory (Lachman, 2006) and despite the uncertainties associated with the pandemic, several studies highlight how good control skills played a protective role in safeguarding mental health by aiding in stress management through the establishment of a functional psychological distance from this traumatic event, thus increasing levels of perceived overall health and life satisfaction (e.g., Lanciano et al., 2020; Li et al., 2020; Zheng et al., 2020). As for the specifics of the lockdown experience, several studies note that the loss of control over the management of time, when related to the violent deconstruction of daily life, had a negative influence on vitality, life satisfaction, fear of contagion, and physical and mental health status (e.g., Zheng et al., 2020; Miceli et al., 2021).

Concern about being infected and/or able to infect others is correlated with loss of control over life, and studies that associate it with variables such as perception of risk, sense of vulnerability, and gender (e.g., Miceli et al., 2021; Settineri & Merlo, 2020; Yildirim et al., 2021) maintain that it has connoted the experience of young adults, especially in the early stages of the pandemic (e.g., Lwin et al., 2020; Regnoli et al., 2022), prompting researchers to speak of "coronaphobia" (e.g., Asmundson & Taylor, 2020; Rubin & Wessely, 2020). The encounter with an unknown virus for which there was a lack of specific treatment coupled with an often-brutal mode of information conveyed by the mass media and fostered the emergence of a collective representation "virus = death" that implemented anxieties and fears related to serious threats to one's safety, both in the general population and in the younger generation (e.g., Ahorsu et al., 2020; Peirone, 2021). Several studies, moreover, show that concern and fear of contagion have negatively affected the psychological well-being of old and new generations by associating, on the one hand, with the emergence of internalizing, externalizing symptoms, and hygiene practices of an obsessive-compulsive nature and, on the other, social withdrawal, massive use

of health care, and compulsive information seeking (e.g., Harper et al., 2021; Knowles et al., 2020; Korte et al., 2021; Li et al., 2020; Veronese et al., 2021). Moreover, the concern of contagion is particularly exacerbated in caregivers of frail and elderly people, aggravating physical and psychological distress (e.g., Haig-Ferguson et al., 2020; Rask et al., 2020). At the same time, in the more complex phases of the pandemic, fear of contagion and perceived vulnerability played a functional role in taking preventive measures to protect oneself and others (e.g., Harper et al., 2021; Wise et al., 2020).

In light of the literature cited above, it seems relevant to implement research on the concerns experienced during the pandemic period, an area of study which has been under-explored in the target audience for this study. Thus, investigating concerns such as 'loss of control over one's own life' and 'fear of contagion' through innovative survey tools could support a more complete understanding of their influence in coping with the pandemic experience in an at-risk target such as young adults.

2. Aim of the present study

The present work is part of a larger project that explored the pandemic experience in young Italian adults from the 2020 lockdown to June 2021 through a research-intervention setting and using a bottom-up survey approach (De Rosa et al., 2021a; De Rosa et al., 2021b). The scale presented here is part of a broader battery of instruments, i.e., the Young Adult Pandemic Experience Questionnaire (YAPEQ), aimed at exploring different themes and constructs associated with different pandemic phases such as, for example, family relationships, the prevalence of positive or negative affective states, perceived level of personal limitation, infodemicity, and trust toward institutions. The current study presents the construction, development, and validation process of the *Lockdown Young Adult Concerns Scale* (LYACS), an instrument to assess the level of two principal concerns during the COVID-19 pandemic lockdown: Loss of Life Control (CLLC) and Infection/Contagion (CIF).

3. Method

3.1 Construct Definition, Scale Design, Administration, and Item Purification

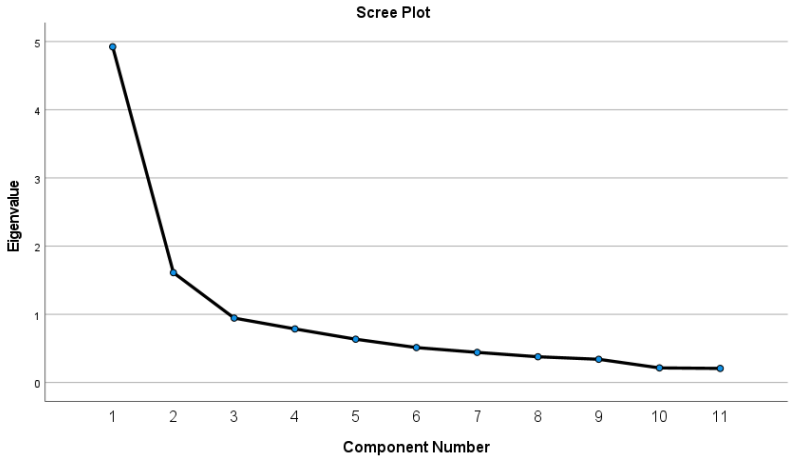
Following Spector's recommendations (1992), we constructed our measure, the LYACS, following these steps: (a) defining the construct; (b) designing the questionnaire; (c) pilot-testing the questionnaire; (d) administering the questionnaire and purifying the measure; and (e) verifying the construct validity.

The literature review revealed two specific types of concern in young adults during the period of forced confinement: Loss of Life Control and Infection/Contagion (e.g., Ahorsu et al., 2020; Asmundson & Taylor, 2020; Maltese, 2021; McKinlay et al., 2021; Miceli et al., 2021; Yildirim

et al., 2021; Regnoli et al., 2022). To refine the definition of the constructs before developing the items for the scale, we used qualitative methods to better understand the most relevant dimension of young adults' concerns during the COVID-19 confinement. Indeed, we collected 23 testimonial narratives, which were subsequently analyzed using the Interpretative Phenomenological Analysis (IPA; Smith, 1995). The results of these analyses (Regnoli et al., 2022) confirmed the existence of the two types of concern already found in the literature, thus used to guide the creation and selection of LYACS items.

Once a definition had been outlined, the content validity judgment criteria for the items were found to be in line with the conceptual definition of young adults' concerns during the COVID-19 confinement. We began with an initial pool of 14 items (7 for each dimension) and used a 7-point Likert-type scale ranging from 1 ("*Strongly disagree*") to 7 ("*Strongly agree*") as response options. All items underwent the judgment of experts who were given the definition of the proposed constructs and were asked to identify any ambiguities in the wording of the items and/or any incompatibilities between the item and the dimension to be measured. Considering the comments and preferences received from the experts, 11 items were selected that could be reliably categorized into one of the two dimensions. We administered this 11-item scale to a group of young adults aged 18-35 years old (N = 100; 75% females; M = 24, SD = 3.9) to further select the items. Participants were recruited in Italy, via social media pages, in May 2021. We identified the factor structure of the questionnaire through Exploratory Factor Analysis (EFA, with Principal Axis Factoring and Oblimin Rotation). Inspection of the scree plot (see Fig. 1) and the eigenvalues suggested a two-factor solution. The following were selected as criteria for factor extraction: eigenvalues > 1.0 (Gutmann, 1954), communality ≥ .30 for each item, and factor loading > .35 for each item associated with extracted factors (Overall & Klett, 1972). The initial eigenvalue of the first factor (F1 = Concern about Loss of Life Control) was 4.92, while the initial eigenvalue of the second factor (F2 = Concern about Infection/Contagion) was 1.61.

Figure 1. LYACS Scree Plot



The KMO value was .85, and Bartlett's test of sphericity was significant [χ2 (df=55) = 502.71 (p=.000)]. The total percentage of variance explained by the two factors was 59.4 % (F1 = 44.8 %; F2 = 14.6%). Overall, all items of the scale meet the selected extraction criteria (Communality > .30; Factor Loading > .35) and are divided as follows: items 1, 2, 4, 6, 7, 8 and 11 are associated with F1 (Concern about Loss of Life Control), while items 3, 5 and 9 are associated with F2 (Concern about Infection/Contagion). For the sake of granting the two dimensions a strong theoretical consistency, we considered it appropriate to eliminate item 10 as it is linked to both factors (see Table 1).

Table 1. LYACS EFA of Original Eleven Items (*N* = 100)

	F1	*F2*
Item 1	**.79**	.24
Item 2	**.77**	.17
Item 3	-.10	**.86**
Item 4	**.45**	.22
Item 5	-.05	**.81**
Item 6	**.82**	-.02
Item 7	**.91**	.10
Item 8	**.45**	.16
Item 9	.27	**.67**
Item 10	**.56**	**.42**
Item 11	**.41**	.27

* Convergence for rotation performed in 5 iterations.

3.2 Procedure and Participants

The sample used for the validation of the LYACS consisted of 259 young adults (76.4% females) aged 18 to 35 years old (*M* = 24; *SD* = 3.8). The majority of participants were students (77.2%) in a relationship (47.5%) and cohabiting with their family during the confinement (79.2%) (See Table 2 for full sociodemographics).

Table 2. Sociodemographics (*N* = 259)

Characteristics	Value (%)	Characteristics	Value (%)
Gender		**Employment**	
Male	61 (23.6)	*Student*	200 (77.2)
Female	198 (76.4)	*Employed*	40 (15.4)
		Unemployed	19 (7.4)
Age (18-35)	24.10		
Origin		**Confinement Cohabitation**	
Northern Italy	21 (8.4)	*Family*	205 (79.2)
Center of Italy	26 (10.3)	*Partner*	29 (11.2)
Southern Italy and islands	206 (79.0)	*Room mates*	14 (5.4)
Abroad	6 (2.3)	*Alone*	11 (4.2)
Civil Status		**Space perception during lockdown**	
Single	112 (43.2)	*Extremely insufficient*	11 (4.4)
In a relationship	123 (47.5)	*Insufficient*	52 (20.6)
Cohabitant	16 (6.2)	*Sufficient*	123 (20.6)
Married	8 (3.1)	*More than sufficient*	46 (18.3)
		Decidedly wide	20 (7.9)
Work during lockdown		**Type of work during lockdown**	
Yes	42 (16.2)	*Working outside the home*	12 (28.6)
No	217 (83.8)	*Smartworking*	22 (52.4)
		Working outside the home and smartworking	8 (19.0)

Participants were recruited in Italy, via social media pages, in June 2021. All data were collected through self-report questionnaires using an Internet-based survey (Hewson et al., 2016). Participation in the study was voluntary and anonymous, and participants were encouraged to answer as truthfully as possible. All participants included in the study signed a consent form on the first page of the survey, which took approximately 20 minutes to complete. The informed consent included detailed information about the aims and procedures of the study, confidentiality, and anonymity of the answers.

Survey data were then entered into the SPSS 27.0 (IBM Corp., 2020) and SPSS AMOS 26.0 (Arbuckle, 2019) databases and checked by project staff for accuracy.

3.3 Measures

A basic demographic questionnaire was constructed *ad hoc* to collect information regarding participants' age and gender, marital status, employment status, region of residence, type of cohabitation and perception of space during the confinement, work possibilities, and type of work during the lockdown.

The *Lockdown Young Adult Concerns Scale* (LYACS) is a 10-item self-report instrument measuring two dimensions of the young adult's concerns during the COVID-19 confinement and includes: a) Concern about Loss of Life Control (7 items, such as "I was concerned that I was no longer in control of my life", and others); b) Concern about Infection/Contagion (3 items; such as "I was concerned about getting sick with COVID-19", and others). Participants were asked to respond according to a Likert-type scale ranging from 1 ("*Not at all*") to 5 ("*Very much*").

3.4 Statistical Analyses

The verification of the factorial structure of the LYACS was realized through Confirmatory Factor Analysis (CFA), using the maximum likelihood estimation method. According to the recommendations of Hu and Bentler (1999) and McDonald and Ho (2002), we used the following indices to evaluate the goodness of fit of the extracted model: chi-squared distribution and the degrees of freedom (X^2/df; in a range from 2 to 5); Goodness of Fit Index (GFI; ≥ .90); Adjusted Goodness of Fit Index (AGFI; ≥ .90); Root Mean Square Error of Approximation (RMSEA; ≤ .08) (Kline, 2005); Standardized Root Mean Square Residual (SRMR; ≤ .09) (Bentler, 1990); Comparative Fit Index (CFI; ≥ .90); Incremental Fit Index (IFI; ≥ .90); Normed Fit Index (NFI; ≥ .90); and Tucker-Lewis Index (TLI; ≥ .90). The internal consistency of the LYACS was evaluated through Cronbach's *a* (Cronbach & Meehl, 1955) and McDonald's *ω* (McDonald, 1999), where values ≥ .70 are considered to be acceptable (Santos, 1999).

To evaluate the convergent validity, we considered Standardized Factor Loading (SFL; ≥ .50), Composite Reliability (CR; ≥ .70), and Average Variance Extracted (AVE; ≥ .50) (Bagozzi & Yi, 1988; Fornell & Larker, 1981; Hair et al., 2010).

Discriminant validity was evaluated through the Fornell and Larcker criterion (Fornell & Larcker, 1981), comparing the Square Root of the Average Variance Extracted (SQRT-AVE) of the Factor Loadings with the correlation value between the factors, considering an SQRT-AVE value that is larger than the correlation between the factors as an indication of acceptable discriminant validity.

Descriptive analyses were conducted for individual scale items (including mean, standard deviation, skewness, kurtosis, and item-total correlation) and the two subscales of the LYACS.

Thus, Two-way Analyses of Variance (ANOVA) explored possible effects of some sociodemographic variables on the two subscales of the LYACS (p-value < .05). Effect sizes were measured through eta-square (η^2; small ≥ .01; medium ≥ .059; large ≥ .138; Cohen, 1998).

4. Results

4.1 Confirmatory Factor Analysis

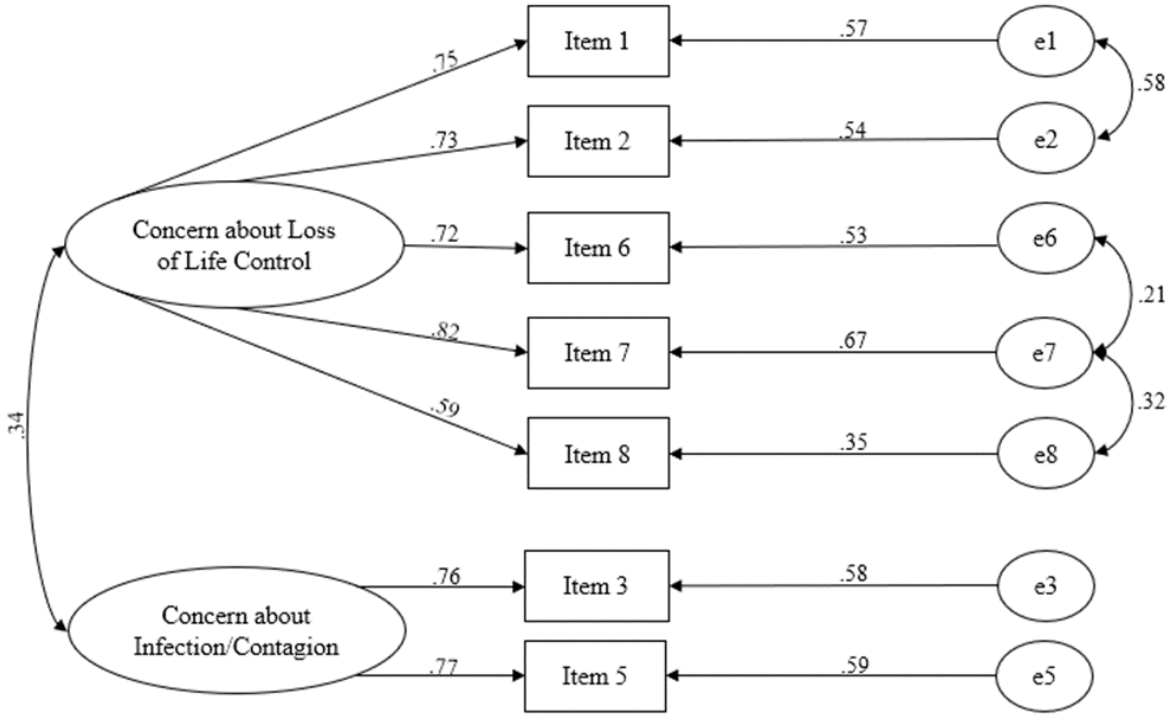
In the default model, χ^2/df = 5.87 (df = 19; p = .000); GFI = .87; AGFI = .78; CFI = .86; TLI = .81; IFI = .89; NFI = .87; RMSEA = .14; and SRMR = .06. To improve the model fit, some changes were made to the original scale. For instance, items having a factor loading < .50 were eliminated, such as items 4 and 11, as was item 9, despite factor loading > .50, due to its residual error which covaried consistently with all items of the first factors. Subsequently, it was observed that the standard errors covariance of items 7 and 8, 6 and 7, 1 and 2, allowed an improvement in all goodness of fit index: χ^2/df = 2.0 (df = 10 p = .000); GFI = .98; AGFI = .94; CFI = .99; TLI = .98; IFI = .99; NFI = .98; RMSEA = .06; and SRMR = .04. Table 3 and figure 2 show the final model.

Table 3. Psychometric Test of Original and Improved Model (N = 259)

Psychometric Test	Original Model	Improved Model	Cut-off Scores
χ^2/df	5.87	**2.0**	($2 < \chi^2/df > 5$)
CFI	.86	**.99**	≥ .90
TLI	.81	**.98**	≥ .90
IFI	.89	**.99**	≥ .90
NFI	.87	**.98**	≥ .90
GFI	.87	**.98**	≥ .90
AGFI	.78	**.94**	≥ .90
RMSEA	.14	**.06**	≤ .08
SRMR	.06	**.04**	≤ .09

***p* < .001**

Figure 2. LYACS Definitive Model



4.2. Reliability, Convergent, and Discriminant Validity

The Internal consistency of the global scale, evaluated through Cronbach's *a,* is .81 while McDonald's *ω* is .80. Specifically, Cronbach's *a* of Factor 1 (Concern about Loss of Life Control) is .87 and of Factor 2 (Concern about Infection/Contagion) is .74. These results show that the scale has a satisfactory dimensional and global internal consistency.

Regarding convergent validity, standardized factor loadings of LYACS' items are all > .50, with $\bar{\lambda}$ ranging from .59 to .82. The value of Composite Reliability (CR) of Factor 1 (Concern about Loss of Life Control) is .85 and of Factor 2 (Concern about Infection/Contagion) is .74. The value of Average Variance Extracted (AVE) of Factor 1 (Concern about Loss of Life Control) is .53 while regarding Factor 2 (Concern about Infection/Contagion) is .58.

Concerning discriminant validity, the Square Root of the Average Variance Extracted (SQRT-AVE) was compared with the correlation between the two factors. The SQRT-AVE of Factor 1 (Concern about Loss of Life Control) is .73 and the SQRT-AVE of Factor 2 (Concern about Infection/Contagion) is .76, above the correlation between the two factors considered ($r = .34$).

4.3. Descriptive Statistics and Group Differences

Descriptive analyses were implemented for all items of the scale, as shown in Table 4.

Table 4. Descriptive Statistics of the 7 Items Proposed (*N* = 259)

	M	*SD*	*Skewness*	*Kurtosis*	*r Item-Total*
1. I was concerned about not knowing when I would return to life as I knew it	3.7	1.1	-.45	-.74	.70
2. I was concerned about having to stay locked inside my house for an indeterminate period of time	3.7	1.2	-.56	-.61	.65
3. I was concerned about getting sick with COVID-19	3.6	1.3	-.35	-1.09	.43
5. I was concerned about infecting my family	3.7	1.3	-.68	-.67	.40
6. I was concerned that I was wasting my youthful days	3.6	1.3	-.58	-.89	.55
7. I was concerned that I was no longer in control of my life	3.5	1.3	-.38	-.98	.70
8. I was concerned about not being productive	3.4	1.3	-.27	-1.17	.58

Mean scores for the single items varied from a minimum score of 3.4 (item 8) to a maximum of 3.7 (item 1), and the Standard Deviation for the single items varied from 1.10 (item 1) to 1.3 (item 8). Pearson inter-item correlation for Factor 1 (Concern about Loss of Life Control) ranged between .39 and .81, while for Factor 2 (Concern about Infection/Contagion) is .58. Table 5 shows the Subscale-specific items, Mean, Standard Deviation, Response Range, Internal Consistency, and Inter-Factor-Correlation.

Table 5. Descriptive Analysis and Item Inter-Factor Correlations of LYACS (*N* = 259)

	Item	***M***	***SD***	**Likert Range**	**Cronbach's *α***	**Item Inter-Factor Correlation Range**
CLLC	1, 2, 6 ,7, 8	3.6	1.0	1-5	.87	$.58 < r > .68$
CIF	3, 5	3.6	1.1	1-5	.77	$.26 < r > .53$
Global Score	-	3.6	.87	-	.81	

Concerning mean scores of both sub-scales and global scores, it is possible to say that young adults have medium to high Concern about Loss of Life Control scores, Concern about Infection/Contagion scores, and Global Concern scores.

ANOVAs were conducted to verify the main effects of participants' gender, marital status, occupation, cohabitation, work possibilities and type of work, and perceived quality of their

own space during the lockdown on the Concern about Loss of Life Control and Concern about Infection/Contagion dimensions.

The results indicate significant effects of gender [$F_{(1, 258)} = 27.41$; $p < .05$; $\eta^2 = .10$] on Concern about Loss of Life Control. Specifically, females scored higher mean scores than male participants (females: $M = 3.7$; $SD = .07$, males: $M = 3.0$; $SD = .12$). Further results indicate significant effects of occupation on Concern about Loss of Life Control [$F_{(2, 258)} = 7.49$; $p < .05$; $\eta^2 = .06$] and *post hoc* comparisons (Tukey Test) show that differences between groups were mainly due to the participant being a student ($M = 3.7$; $SD = 1.0$), rather than unemployed ($M = 3.0$; $SD = 1.0$), and being employed ($M = 3.7$; $SD = .9$) rather than unemployed ($M = 3.0$; $SD = 1.0$). Moreover, the results indicate significant effects of the perceived quality of personal space during the lockdown on Concern about Loss of Life Control [$F_{(4, 251)} = 4.8$; $p < .05$; $\eta^2 = .07$]. *Post hoc* comparisons (Tukey Test) show that differences between groups were mainly due to living in an extremely insufficient space ($M = 4.3$; $SD = .7$) rather than in insufficient ($M = 3.8$; $SD = .9$) or decidedly wide spaces ($M = 2.9$; $SD = 1.1$).

Furthermore, the results indicate significant effects of having/not having worked [$F_{(4, 251)} = 4.8$; $p < .05$; $\eta^2 = .07$] on Concern about Loss of Life Control. The comparison of average values shows that the differences between groups were mainly due to not having worked ($M = 3.7$; $SD = 1.0$) rather than having worked ($M = 3.3$; $SD = .9$).

No significant differences were found in marital status and type of work concerning the Concern about Loss of Life Control dimension.

Finally, the results indicate significant effects of gender [$F_{(1, 258)} = 4.13$; $p < .05$; $\eta^2 = .02$] on Concern about Infection/Contagion dimension. The comparison of average values shows that the differences between groups were due to due to being female ($M = 3.7$; $SD = 1.1$) rather than being male ($M = 3.4$; $SD = 1.1$). Furthermore, the analysis points out significant effects of cohabitation during lockdown [$F_{(3, 258)} = 5.86$; $p < .05$; $\eta^2 = .07$] on Concern about Infection/Contagion dimension. Post hoc comparisons (Tukey Test) show that differences between groups were due to living with roommates ($M = 2.8$; $SD = 1.3$) rather than living alone ($M = 2.1$; $SD = 1.1$); between living with a partner ($M = 3.6$; $SD = 1.2$) rather than living alone ($M = 2.1$; $SD = 1.1$); living in the family ($M = 3.7$; $SD = 1.1$) rather than living alone ($M = 2.1$; $SD = 1.1$).

No significant differences were found in marital status, occupation, having/not having worked, type of work, and perceived quality of their own space during lockdown regarding Concern about Infection/Contagion dimension.

5. Discussion

This paper describes the process of developing and evaluating the psychometric properties of the *Lockdown Young Adult Concern Scale* (LYACS), a 7-item self-report instrument designed to explore two of the main concerns that characterized Italian young adults during the lockdown period: concern about the loss of control over life and concern about infection-contagion (e.g., Ahorsu et al., 2020; Asmundson & Taylor, 2020; Germani et al., 2020; Gori et al., 2021; Maltese, 2021; McKinlay et al., 2021; Miceli et al., 2021; Yildirim et al., 2021; Ranta et al., 2020; Regnoli et al., 2022). The analyses conducted show that the LYACS can be considered a valid tool for exploring the concerns of young adults during the pandemic and, specifically, the two dimensions of Loss of Life Control and Infection/Contagion. The CFA allowed the definition of significant items for the two dimensions explored, showing good fit indices between models and data. Subsequent analyses showed good dimensional and global internal consistency according to the criteria proposed by Cronbach (1955) and McDonald (1999). Furthermore, considering Fornell & Larker's (1981) criterion, the scale seems to possess good convergent validity by showing satisfactory scores on factor loadings of items, composite reliability (CR), and Average Variance Extracted (AVE). The relationship between the SQRT-AVE and factor correlation shows satisfactory discriminant validity of the proposed instrument.

The "Concern about Loss of Life Control" subscale consists of 5 items designed to explore how concerned young adults felt about losing control over their lives during forced confinement. The constructed items explore concerns regarding not knowing when they would return to pre-pandemic normalcy, having to stay locked inside their homes indefinitely, not being able to devote time to activities that are typical of their young age, or not being able to spend time productively. Our study detects medium to high scores on the dimension "Concern about Loss of Life Control," which is in line with findings in the previous literature (e.g., Lardone et al., 2020; Lee et al., 2020; McKinlay et al., 2021; Miceli et al., 2021; Regnoli et al., 2022), thus reiterating how the limits imposed by the pandemic have generated often uncontrollable changes in the routines of young adults (Cao et al., 2020).

ANOVA results show statistically higher levels of Concern about Loss of Life Control in women than in men. Considering the protective role of perceived control on overall health and life satisfaction (e.g., Lanciano et al., 2020; Li et al., 2020; Zheng et al., 2020), and in agreement with other studies (e.g., Di Giuseppe et al., 2020; Procaccia et al., 2022; Rossi et al., 2020), this finding could indicate greater psychological distress in women when it comes to the lockdown experience. Similarly, the statistically higher levels of Concern about Loss of Life Control found in students compared to unemployed people and workers could be indicative of greater

psychological distress in this sub-target, a category that is also reported in the literature as having been particularly scarred by the pandemic experience (e.g., Balsamo & Carlucci, 2020; Wang et al., 2020). Concern about Loss of Life Control, moreover, was higher in subjects who perceived their home space to be extremely insufficient or inadequate, compared to those who perceived it to be adequately ample. Several studies have shown how living within a confined space during the lockdown negatively has affected psychological well-being, exacerbating family conflicts, raising stress levels, and limiting personal autonomy (e.g., McKinlay et al., 2022; Savarese et al., 2020; Xie et al., 2021). Therefore, being able to enjoy a larger domestic space and, therefore, a space for one's needs and interests, a private space to self-shelter oneself from disturbing elements, may have served a protective and restraining function with respect to external upheavals, reducing anxieties and concerns (e.g., Langmeyer et al., 2020; Lips, 2021). Just as having a private space played a restraining role in coping with the pandemic experience, the ability to continue working during the lockdown was also found to be a protective factor that could reduce, albeit slightly, Concern about Loss of Life Control compared to those who had to stop working. The ability to maintain an essential element of continuity with pre-pandemic normalcy, while sociality and other activities came to a halt, may have provided an anchor in daily engagement, performing a restraining function that kept anxieties and fears at bay (e.g., Guidetti et al., 2022; Pieh et al., 2020; Regnoli et al., 2022).

The "Concern about Infection/Contagion" subscale consists of 2 items that investigate the extent to which young adults feared Covid-19 infection and how much they worried about infecting others. The medium-high subscale score on the Concern about Infection/Contagion dimension highlights how this concern played a significant role in the experience of young adults who, although less at risk than adults and elderly people, still faced an invisible enemy (Peirone, 2021).

The worry of being infected, or "coronaphobia" (e.g., Asmndson & Taylor, 2020; Rubin & Wessely, 2020), is a construct that has been investigated by multiple authors who have researched its negative influence on psychological well-being (e.g., Ahorsu et al., 2020; Benedetto et al., 2022; Mucci et al., 2020; Korte et al, 2021; Veronese et al., 2021), its association with exposure to highly anxiety-provoking, chaotic, and excessive information (e.g., Biondi & Iannitelli, 2020; Knowles et al., 2020; Regnoli et al., 2022), and also its predictive function on compliance toward government-issued health obligations and in the adoption of preventive behaviors (e.g., Harper et al., 2021; Lardone et al., 2020; Wise et al., 2020). Similarly to what has been presented above, the ANOVA results show a significant and positive association between being female and higher levels of Concern about Infection/Contagion. Considering what

emerged in the literature, the finding could reiterate higher psychological distress in female participants (e.g., Di Giuseppe et al., 2020; Rossi et al., 2020), who showed a high level of concern about being infected and infecting others; at the same time, it could be investigated in relation to the higher female compliance to imposed containment measures detected in previous studies (e.g., Lin et al., 2021; Regnoli et al., 2022; Silesh et al., 2021). Finally, the ANOVA showed significantly higher Concern about Infection/Contagion scores in those who experienced the lockdown together with their roommates, partners, and family members as compared to those who were alone, and whose number was well below average. This finding suggests that the concern about infecting others in young adults (and especially the frail and elderly) was greater than that of being infected (Zhang et al., 2021). This finding would merit further investigation insofar as it contrasts sharply with the Italian media reports that portrayed young people as unaware of the risks, disinterested, and irresponsible toward those who were most at risk, particularly in the most dramatic phases of the pandemic, and almost described them plague spreaders.

The medium to high levels found for the two dimensions that LYACS explores, however, may in part stem from the strict restrictions that the Italian government imposed to contain the contagion. In Italy, containment measures were stricter and lasted longer than in other parts of the world, marking an abrupt transition from a state of total freedom to forced closure that abruptly deconstructed young people's daily routines (Saulle et al., 2021). These results may, therefore, not apply to the youth population belonging to other cultural backgrounds. In addition, it should be considered that the data collection took place at a time when lockdown procedures were beginning to loosen up. Therefore, like all surveys conducted in moments of emergency, it should be pointed out that the levels of Concern about Loss of Life Control and Concern about Infection/Contagion reported in the present study might be underestimated.

6. Strengths, Limitations, and Future Research Directions

To our knowledge, the LYACS is the only scale investigating the main concerns that young adults experienced during the lockdown. Specifically, it allows us to explore two specific concerns related to the lockdown period: Concern about Loss of Life Control and Concern about Infection/Contagion. The scale also has satisfactory psychometric properties, meets the validity criteria, and could add significant insights into the understanding of such a complex traumatic event as the COVID-19 pandemic.

Nevertheless, the present study has some limitations. The first general limitation is related to sampling. Indeed, convenience sampling implies specific possible biases, such as the volunteers' bias, which is related to the special characteristics of individuals who voluntarily participate in a

study. Another possible bias in the study is that of the mono-method, related to the fact that having assessed all variables of the study by using self-report instruments, there can be inflation in observed associations. In addition, the participants are predominantly young adult students, which might have influenced our results. Future research should try to work samples including a larger number of young adult workers. Furthermore, our sample was not balanced for gender and future research should try to work with more gender-balanced samples.

Finally, it should be considered that the results of studies related to emergency situations are strongly influenced by the specific time at which the data are collected. Taken together, these limitations do not allow for generalizability of the results to the entire population of Italian young adults.

7. Conclusions

The COVID-19 pandemic, and in particular the lockdown experience, influenced young adults into experiencing the concern that they no longer had control over their lives, and that they would become infected by and/or a vehicle of infection for the people they came into contact with (e.g., Ahorsu et al., 2020; Asmundson & Taylor, 2020; Germani et al., 2020; Yildirim et al., 2021; Ranta et al., 2020). This study presents the process of constructing and validating the LYACS, a short scale with good psychometric properties that can explore the level of concern in young adults during the lockdown by specifically detecting the levels of Concern about Loss of Life Control and Concern about Infection/Contagion. Several studies have shown an association between high levels of Concern about Loss of Life Control, Infection/Contagion, and psychological distress expressed as anxiety, depression, posttraumatic symptoms, obsessive hygiene rituals, and social withdrawal (e.g., Zheng et al., 2020; Miceli et al., 2021; Yildirim et al., 2021; Haig-Ferguson et al., 2020; Rask et al., 2020). Therefore, detecting the levels of Concern about Loss of Life Control and Concern about Infection/Contagion in young adults could deepen knowledge about how they cope with and manage the pandemic experience as well as other emergencies, and, in combination with other self-report instruments, explore psychological well-being and compliance toward governmental preventive obligations and advice.

Ethical approval: The study complied with the American Psychological Association (APA) ethical standards in the treatment of human research participants and conformed to the provisions of the 1964 Helsinki declaration and its later amendments. Furthermore, the study was approved by the Ethical Committee of Psychological Research of the Department of Humanities of the University of Naples Federico II (protocol no. 14b-2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study and all participants expressed their consent to the audio-recording of their interviews, aware that the data collected would remain anonymous, that privacy laws would be observed (L. n. 219, 22/12/2017), that they had the possibility to leave the study at any time, and that the narrative material would have been subsequently analyzed.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors without undue reservation.

Conflict of interest statement: The authors have no conflicts of interest to report.

Authors' Contribution: The work belongs in equal parts to its authors.

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