

Article

The Impact of Interpersonal Cognitive Distortions on Satisfaction with Life and the Mediating Role of Loneliness

Orçun Muhammet Şimşek ^{1,2,*} , Orhan Koçak ³  and Mustafa Z. Younis ⁴

¹ Institute of Graduate Studies, Istanbul University-Cerrahpasa, Istanbul 34320, Turkey

² Department of Social Work, Nisantasi University, Istanbul 34000, Turkey

³ Faculty of Health Science, Istanbul University-Cerrahpasa, Istanbul 34320, Turkey; orhan.kocak@istanbul.edu.tr

⁴ College of Health Sciences, Jackson State University, Jackson, MS 39213, USA; mustafa.younis@jsums.edu

* Correspondence: orcunm.simsek@hotmail.com

Abstract: Loneliness and cognitive distortions have serious negative effects on life satisfaction and are seen as related to each other. However, what mediates in these relationships has not been adequately analyzed. This study aims to analyze the effect between cognitive distortions and life satisfaction by asserting the mediating role of loneliness. For this purpose, we conducted a cross-sectional study with 978 people over the age of 20 from various parts of Turkey using a general screening model. Firstly, we analyzed the direct effect of interpersonal rejection, interpersonal misperception, and unrealistic relationship expectation, which are sub-dimensions of cognitive distortions, loneliness, and life satisfaction. Secondly, we analyzed the effects of independent, mediation, and interaction (Loneliness X age) variables on satisfaction with life. Thirdly, we applied direct regression analysis between independent, mediating, and dependent variables to conduct the mediation analysis of the study. Also, we examined age as a moderator between loneliness and life satisfaction. The results showed loneliness as an essential determinant between cognitive distortions and life satisfaction. Moreover, in the moderation analysis, we found some age-related differences between loneliness and life satisfaction. According to this, both loneliness and life satisfaction increased with increasing age. However, life satisfaction decreased as loneliness increased in young people. Being able to compensate for loneliness in the aging process is an essential psychological indicator. Although young people have more opportunities than older people, their ability to cope with negative situations such as loneliness is largely undeveloped. These results showed both psychological and sociological problems of loneliness. Therefore, the results can be useful for the prevention of loneliness and the development of intervention programs.



Citation: Şimşek, O.M.; Koçak, O.; Younis, M.Z. The Impact of Interpersonal Cognitive Distortions on Satisfaction with Life and the Mediating Role of Loneliness. *Sustainability* **2021**, *13*, 9293. <https://doi.org/10.3390/su13169293>

Academic Editor: Carlos Salavera

Received: 16 June 2021

Accepted: 13 August 2021

Published: 18 August 2021

Keywords: loneliness; cognitive distortions; life satisfaction; public health

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Social relationships are at the center of human life, and loneliness represents a problem that people of almost all societies and ages can encounter in their social relationships [1]. In recent years, factors such as longer life expectancy, preference for fewer children, increase in divorce rates, and moving away from the intimate environment for education or work have triggered individuals to live a more isolated life than others [2]. All these changes reduce people's social experiences and, as a result, reveal loneliness [3]. According to the results of the survey study by the EU Income and Living Conditions Statistics unit on how lonely EU and candidate country citizens feel themselves; 6.7% of Europeans (15.3% of Luxembourgers, 14.4% of Italians, 13.4% of Greeks, 12.4% of Croatians, 12.3% of Portuguese, 2.9% of Swedes 2.9% of Slovenians, 2.8% of Danes, 2.5% of Finns, 1.4% of Slovaks) and 11.3% of Turks feel lonely [4]. Individuals have become lonelier due to increased social isolation, especially after the emergence of COVID-19 [5].

Defined as the inconsistency between social relationships desired and encountered, loneliness impacts the lives of individuals [6,7]. Loneliness is based on many mental problems and personality disorders [8–10]. At the same time, the fact that loneliness is examined within the framework of the cognitive approach provides clues about the relationship between loneliness and thought structures [6]. Individuals develop some unrealistic thoughts and beliefs about loneliness. For this reason, the relationship between irrational beliefs and loneliness has been made a subject of research [11]. These irrational thought structures, conceptualized as cognitive distortions, are among the problems individuals can face in their relationships [12]. To understand the reasons for cognitive distortions experienced by individuals in the relationships, some factors on cultural, environmental, and genetic factors must be explained [13–15]. When loneliness is considered among environmental factors, it can affect cognitive distortions in relationships and decrease life satisfaction. Understanding what causes individuals to experience cognitive distortions in their relationships and the effect of these distortions on life satisfaction is important in developing interventions to protect from the impact of cognitive distortions and to reduce these effects. Previous research separately emphasizes the relationship between loneliness and cognitive distortions and life satisfaction [11,16–18]. However, there was no study in which three variables were constructed together in the literature. Therefore, we asked whether we can explain the effect of cognitive distortions in relationships on life satisfaction through loneliness. There are two research questions in our study. The first of these research questions is RQ1: “How do cognitive distortions affect satisfaction with life in Turkish society during Covid-19?”. The second of these research questions is RQ2: “How does age affect loneliness and life satisfaction in Turkish society during the Covid-19?”.

After all these questions, firstly we assumed loneliness as the mediator between three sub-dimensions of interpersonal cognitive distortions and life satisfaction. Then we considered as moderator the age. In the current paper, 978 people living in different cities of Turkey were analyzed to examine the mediating effect of loneliness, the moderator effect of age, and to make some suggestions for academics, practitioners, and policymakers.

1.1. Cognitive Distortions

Aaron T. Beck developed the cognitive approach as a result of his studies with patients diagnosed with depression at the University of Pennsylvania in the early 1960s. According to the cognitive approach, many psychological disorders have distorted ways of thinking [19]. These wrong and inefficient ways of thinking that occur in information processing are conceptualized as cognitive distortions and are included in the cognitive approach. Cognitive distortions cause dysfunctional behaviors and emotions in individuals and develop negative thoughts towards oneself and others [20,21]. The automatic thoughts developed are often unlikely to be true, and it is caused by systematic logic errors embedded in people’s perceptions, called cognitive distortions [22–24]. Cognitive distortion emerging from negatively processed information obtained by individuals is composed of; (a) ideas setting individuals back from their goals, (b) unrealistic demands from themselves, others, and the world, (c) evaluation of events from a negative perspective in an exaggerated way [21,25,26]. Because of the relationship between thinking styles and depression, Albert Ellis links the causes of depressive feelings individuals experience to irrational beliefs and says that these unrealistic thoughts are present in each of us [21,27,28]. On the other hand, these unrealistic thoughts can be shaped by different variables such as gender, age, education, marital status, and the number of siblings [29–34].

1.2. Interpersonal Cognitive Distortions

Interpersonal cognitive distortions constitute rigid, illogical, and finalized thought patterns that are greatly exaggerated in relationships’ nature, and it involves massive misinterpretation of the events encountered in life [35,36]. These rigid relationship schemes directly lead to a limited role repertoire in social relations [14,37]. According to Hamamcı and Büyüköztürk, these rigid schemes occurring in relationships has been divided into

three categories as interpersonal rejection (avoidance of intimacy), unrealistic relationship expectation, and interpersonal misperception (mind-reading), and has been tried to explain the limited role repertoire caused by these distortions [38]. According to the researchers, firstly, interpersonal rejection (avoidance of intimacy) means that individuals think they will experience negative consequences when they establish close relationships with others. Secondly, unrealistic relationship expectation implies high-performance expectancy in individuals' relationships, both from their behavior and from the behaviors of others. Finally, interpersonal misperception (mind-reading) refers to an attempt to understand others' feelings and thoughts using unrealistic methods by individuals.

1.3. Loneliness

Loneliness is typically defined as the absence of satisfactory social relationships [39,40]. It is known that unsatisfactory social relationships, rather than the frequency and amount, are associated with loneliness [41]. The most common conceptualization centers on perceived inconsistency. According to this conceptualization, loneliness arises from the inconsistency between the desired and faced social relationships [42,43]. In the literature, it is also seen that besides this one-dimensional perspective, loneliness is addressed in two dimensions. Weiss examined loneliness in two dimensions in his studies and divided loneliness into two socially and emotionally [44]. Social loneliness derives from the lack of a satisfying social environment, while emotional loneliness results from losing a close attachment relationship. Whether one-dimensional or two-dimensional, loneliness is at the center of subjective and negative evaluations in cognition [45]. The fact that loneliness is associated with psychological problems such as depression, alcohol addiction, obesity, and suicide are some indicators to reinforce this view [46–53]. It is also known that loneliness is associated with various variables such as gender, age, education, marital status, and the number of siblings [54–58].

1.4. Life Satisfaction

Life satisfaction is the evaluation of one's own life as a whole through cognitive processes [59,60]. It has been known that subjective well-being and happiness in life are components of life [60–62]. The concept of life satisfaction expresses the result of comparing the life targeted with the current life by individuals [63,64]. As most individuals' primary goal of life, life satisfaction is closely related to how individuals evaluate their lives [65]. Factors that should be focused on, such as gender, age, education, marital status, number of siblings, personality traits of individuals, close interpersonal relationships, work experiences, culture, and religion, are clues to understanding better their life satisfaction [66–70]. The literature mentions three fundamental factors that affect the life satisfaction of individuals [71]. Firstly, life satisfaction has been based on some external criteria, such as the subjective well-being of people [72]. Secondly, the factors that influence the positive realization of the judgments of individuals regarding their lives are examined [73]. Finally, it is described that the dominance of positive emotions over negative emotions in daily relationships affects life satisfaction [74]. According to our perspective, positive thoughts and evaluations we develop on our whole life affect life satisfaction [60,75,76].

1.5. The Relationship between Interpersonal Cognitive Distortions, Loneliness, and Satisfaction with Life

The focus of the occurrence of cognitive distortions is social relationships. Cognitive distortions are associated with the healthy conduct of social relations, achieving satisfaction in relationships, and resolving what causes conflicts [77]. Misconceptions and expectations for interpersonal relationships can affect sustainability in relationships [78]. At the same time, the explanation of loneliness as unsatisfactory rather than the frequency of social relationships shows us the relationship between cognitive distortions and loneliness [41]. Therefore, some studies have felt the need to focus on cognitive aspects to explain loneliness [79]. In particular, Hamamcı and Duy found that cognitive distortions related to avoiding intimacy have a negative effect on the experience of loneliness [80]. This means

that individuals who avoid establishing close relationships in their social relationships will adopt a more isolated lifestyle and may naturally suffer loneliness. It is a known fact that people who suffer from loneliness experience severe cognitive distortions [81]. Lonely people fail to build close relationships because their approach to relationships is based on negative expectations [82]. Increasing negative expectations leads to an increase in loneliness [83]. Hence, based on the aforementioned ideas,

Hypothesis 1 (H1). *Interpersonal rejection (avoidance of intimacy) will increase loneliness.*

Hypothesis 2 (H2). *Unrealistic relationship expectations will increase loneliness.*

Hypothesis 3 (H3). *Interpersonal misperception (mind-reading) will reduce loneliness.*

Factors such as intimacy and healthy communication are linked to the overall quality of life and psychological adjustment [84]. According to Hamermesh, individuals who spend more time alone have less life satisfaction [85]. Many studies in the literature emphasize the negative relationship between loneliness and life satisfaction [86–91]. In these studies, loneliness is presented as an essential determinant of life satisfaction. Indeed, the lack of a satisfactory social environment and close attachment relationship reduces people's life satisfaction [44]. This negative relationship between loneliness and life satisfaction has raised several questions, such as “the effect of age”. There are inferences in previous studies, such as new health problems due to aging and, as a result, less life satisfaction and more loneliness [92,93]. However, some research suggests that despite the decreased physical strength and other difficulties due to aging, older individuals are satisfied with life [94]. The current data say that individuals engage in various activities to minimize and compensate for the psycho-social losses that occur during the aging process [2,95–97]. Therefore, based on the ideas mentioned above.

Hypothesis 4 (H4). *Experiencing loneliness will reduce life satisfaction.*

Hypothesis 5 (H5). *Age has a moderation effect between loneliness and satisfaction with life.*

Although studies with these indicators are an exception, today, loneliness continues to have a negative effect on life satisfaction. Cognitive distortions isolate, and lonely individuals receive less satisfaction from life. It is known that subjective well-being and happiness in life are components of life satisfaction [61,62]. Although there aren't studies that directly investigate the negative relationship between cognitive distortions and life satisfaction in the literature, studies indirectly investigate the relationship between psychological well-being, which is an indicator of life satisfaction [98,99]. According to these studies, increasing cognitive distortions decrease psychological well-being. At the same time, some other studies address the negative relationship between negative automatic thoughts and life satisfaction [100]. According to these studies, having negative automatic thoughts reduces life satisfaction. In previous studies, the factors that affect the realization of individuals' judgments about their lives positively were examined. It was stated that the dominance of positive emotions over negative emotions in daily relationships affects life satisfaction [74]. Hence, based on the aforementioned ideas.

Hypothesis 6 (H6). *Interpersonal rejection (avoidance of intimacy) will reduce satisfaction with life.*

Hypothesis 7 (H7). *Unrealistic relationship expectations will reduce satisfaction with life.*

Hypothesis 8 (H8). *Interpersonal misperception (mind-reading) will increase satisfaction with life.*

Hypothesis 9 (H9). *Loneliness has a mediation effect between interpersonal cognitive distortions and satisfaction with life.*

According to all this theoretical framework, the conceptual model of the current study is shown in Figure 1.

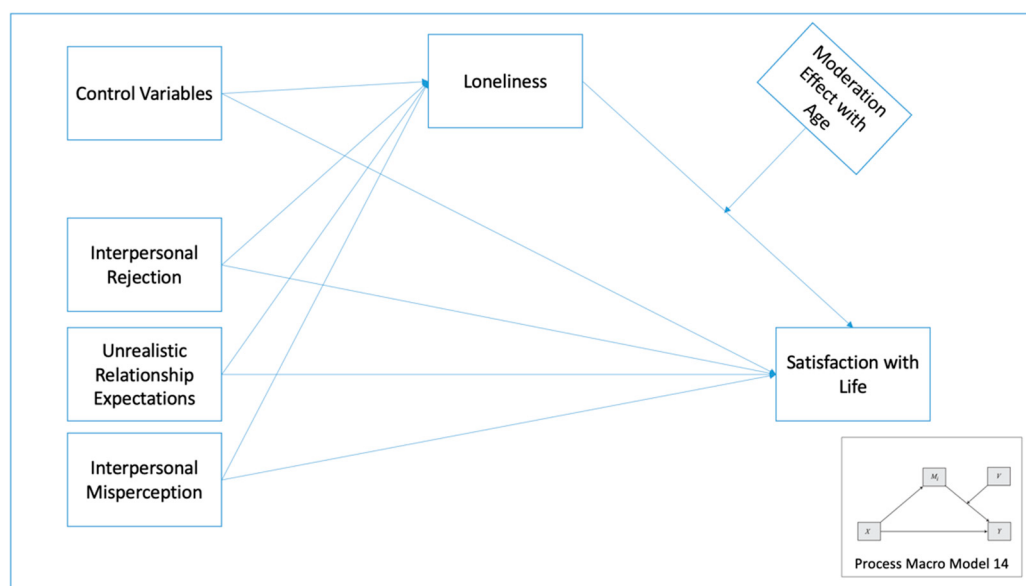


Figure 1. Conceptual Diagram of Model (Model 14). Notes: Control Variables = Gender, Age, Marital Status, Education, and Number of Siblings.

2. Materials and Methods

2.1. Study Design, Participants, and Procedure

Since this research aimed to understand variation on dependent variables at a given time among people in Turkey, we planned a cross-sectional study. We used the process of convenience sampling to assess the sample and used the survey as a medium to gather data. In this research, a quantitative and correlational design was used. Using cross-sectional data, variables were measured at a particular point in time. This research design is appropriate for our goal, as we did not aim to generalize the levels of variables but rather assessed the relationship pattern between variables and to see the frequency of these relationships.

All of the participants were from different regions and cities within Turkey. The individuals were reached online ($n = 1039$). We sent an invitation to more than 1500 people from different areas and cities within Turkey. Interested participants could click on the link in the invitation to be directed to the survey's website. To test our hypotheses, 1039 people from different regions and cities within Turkey participated in this research. However, 61 people were excluded from the data analysis due to the participants' incomplete filling, and 978 people were analyzed.

All participants were informed about the aims of the research before answering the questionnaire. Technically, participation in the survey was only allowed once. After they started to answer the questionnaire, they were able to terminate it whenever they wanted. Thus, confidentiality and anonymity of data were ensured. The study was carried out in accordance with the Declaration of Helsinki criteria.

2.2. Data Collection Tools

2.2.1. Socio-Demographic Information Form

In order to determine the socio-demographic characteristics of participants, a form prepared by the researchers consisting of 5 questions was developed. The questions consist of basic demographic variables such as gender, age, education, marital status, and the number of siblings.

2.2.2. Interpersonal Cognitive Distortions Scale

The interpersonal cognitive distortions scale (ICDS), developed by Hamamcı and Büyüköztürk [38] to evaluate the cognitive distortions that individuals exhibit in their relationships, consists of 19 items. There are three factors in the scale, namely “Interpersonal Rejection”, “Unrealistic Relationship Expectation”, and “Interpersonal Misperception”. The answers are given to the questions in this scale; It is graded in a five-digit Likert type, ranging from 1 (Never Agree) to 5 (Strongly Agree). The highest score obtained from the scale is 95, and the lowest score is 19. High-scale scores indicate that individuals have interpersonal cognitive distortions. The Cronbach’s Alpha reliability coefficient of the scale applied to the sample of this study was 0.80 for the interpersonal rejection sub-dimension, 0.70 for interpersonal misperception sub-dimension, and 0.75 for the unrealistic relationship expectation sub-dimension. Also, by examining whether the data provided the assumption of normality within the scope of this study, it was determined that the skewness (0.118) and kurtosis (0.374) values were between -1 and $+1$ values and provided the normality assumption [101].

2.2.3. Satisfaction with Life Scale

The life satisfaction scale was developed by Diener et al. [102] to measure satisfaction from life. The adaptation of the scale to Turkish was carried out by Köker [103]. The scale consists of 5 questions answered in Likert type ranging from 1 (Not Suitable) to 7 (Fully Suitable). The lowest score is 5, and the highest is 35. An increase in score in the evaluation of the scale indicates that the individual’s life satisfaction is high. The Cronbach’s Alpha reliability coefficient of the scale applied over the sample of this study was found to be 0.85. Besides, by examining whether the data provided the assumption of normality within the scope of this study, it was determined that the skewness (-0.080) and kurtosis (-0.244) values were between -1 and $+1$ values and provided the normality assumption [101].

2.2.4. UCLA Loneliness Scale

The UCLA loneliness scale was developed by Russell et al. [104] to measure the level of loneliness perceived by the individual and was first reviewed by Russell et al. [105] and then only by Russell [106]. Turkish adaptation of the scale was carried out by Demir [107]. The scale includes 20 items, 10 of which are coded in reverse and 10 of which are straight, and the evaluation is made on a 4-point Likert-type scale. The items of the scale are rated between 1 (Never) and 4 (Frequently). The lowest score on the scale is 20, and the highest score is 80. High scores of the individuals participating in the study indicate that the level of loneliness is high. When they get a low score, it indicates that the level of loneliness is low. Cronbach’s alpha internal consistency was $\alpha = 0.86$ in this study. In addition, by examining whether the data provided the assumption of normality for this study, it was determined that the skewness (0.435) and kurtosis (-0.229) values were between -1 and $+1$ values and provided the normality assumption [101].

2.3. Data Analysis

The data began to be collected on 3 November 2020, during the Covid-19 outbreak, and was completed on 20 December 2020. After the data were downloaded from an online survey website, they were transferred to MS Excel for data screening and cleaning. All data analysis of this study was performed with the help of SPSS 22 software. The demographic characteristics of the participants were analyzed using descriptive analysis. Both categorical classifications and means and standard deviations are represented in the descriptive analysis. Pearson correlation technique was used to measure the correlation between interpersonal cognitive distortions (interpersonal rejection, interpersonal misperception, unrealistic relationship expectations), loneliness, satisfaction with life, and demographic variables. To examine the hypothesis, Model 14 in PROCESS-Macro plug-in developed by Hayes [108] was applied to examine the mediation effect of loneliness between interpersonal cognitive distortions and life satisfaction, and the moderation effect of age between loneliness and life satisfaction. We conducted simple slope tests for two-way interactions [109]. The significance level was set at 0.05.

3. Results

3.1. Descriptive Analysis

As shown in Table 1, 57.2% of the participants were female and 42.8% were male; moreover, 65.5% were 20–30 years old, 12.7% were 31–40 years old, 7.4% were 41–50 years old, 8.8% were 51–60 years old, and 0.5% were ≥ 61 years old; participants' education levels were as follows: 0.2% did not graduate from any school, 1.5% were primary school, 2.4% were middle school, 13.6% were high school, 70.6% were a university, and 11.8% were master/doctorate. In total, 71.1% of the participants were single, and 28.9% were married. In addition, participants' siblings 5.9% were ≤ 1 , 84.8% were 2–5, and 9.3% were ≥ 6 .

Table 1. Descriptive Statistics.

	Frequency	Percentage
Gender		
Female	559	57.2%
Male	419	42.8%
Age		
20–30	641	65.5%
31–40	124	12.7%
41–50	72	7.4%
51–60	86	8.8%
≥ 61	5	0.5%
Education		
No	2	0.2%
Primary School	15	1.5%
Middle School	23	2.4%
High School	133	13.6%
University	690	70.6%
Master/Doctorate	115	11.8%
Marital Status		
Single	657	67.2%
Divorced	34	3.5%
Loss of Partner	4	0.4%
Married	283	28.9%
Number of Siblings		
≤ 1	58	5.9%
2–5	829	84.8%
≥ 6	91	9.3%

3.2. Correlations between Variables

The correlations among study variables including demographics, means, and standard deviations are shown in Table 2. According to Table 2, the Interpersonal Rejection decreased as the education level increased ($r = -0.133, p < 0.01$); the Interpersonal Misperception decreased as the age increased ($r = -0.119, p < 0.01$), decreased as the education level increased ($r = -0.064, p < 0.05$), and the Interpersonal Rejection increased as the Interpersonal Misperception increased ($r = 0.205, p < 0.01$); the Unrealistic Relationship Expectations was higher in male ($r = 0.105, p < 0.01$), the Unrealistic Relationship Expectations increased as the Interpersonal Rejection increased ($r = 0.150, p < 0.01$), and the Unrealistic Relationship Expectations increased as the Interpersonal Misperception increased ($r = 0.150, p < 0.01$); the Loneliness was higher in females ($r = -0.083, p < 0.01$), the Loneliness decreased as education level increased ($r = -0.070, p < 0.05$), the Loneliness increased as the Interpersonal Rejection increased ($r = 0.618, p < 0.01$); the Satisfaction with Life increased as age increased ($r = 0.189, p < 0.01$), the Satisfaction with Life was higher in married ($r = 0.227, p < 0.01$), the Satisfaction with Life decreased as the Interpersonal Rejection increased ($r = -0.246, p < 0.01$), the Satisfaction with Life decreased as the Loneliness increased ($r = -0.331, p < 0.01$).

Table 2. Means, Standard Deviations and Correlations.

		Mn.	Sd.	1	2	3	4	5	6	7	8
1	Gender (1–2)	1.43	0.50	1							
2	Age	29.59	11.19	0.274 **	1						
3	Marital Status (1–4)	0.29	0.45	0.140 **	0.659 **	1					
4	Education	4.88	0.71	0.003	−0.090 **	−0.197 **	1				
5	IR	2.72	0.72	−0.054	−0.017	−0.001	−0.133 **	1			
6	IM	3.34	0.83	−0.062	−0.119 **	−0.054	−0.064	0.205 **	1		
7	URE	3.01	0.80	0.105 **	0.061	0.058	−0.027	0.150 **	0.226 **	1	
8	Ln	2.05	0.40	−0.083 **	0.023	−0.012	−0.070	0.618 **	−0.041	−0.02	1
9	SWL	3.03	0.79	0.046	0.189 **	0.227 **	−0.038	−0.246 **	0.027	−0.005	−0.331 **

Notes. IR = Interpersonal Rejection, IM = Interpersonal Misperception, URE = Unrealistic Relationship Expectations, Ln = Loneliness, SWL = Satisfaction with Life, For Gender: 1 = Female, 2 = Male, For Marital Status: 1 = Single, 2 = Divorced, 3 = Loss of Partner, 4 = Married.

** $p < 0.01$.

3.3. Direct Regression Analysis

To test the hypothesis, multiple regression analyses were performed in Table 3. Some of the demographic variables, such as gender, age, marital status, education, and the number of siblings were used as control variables in all models. The direct effects were performed in all models. Firstly, in our conceptual model shown in Figure 1, an impact analysis was performed between the arguments, Interpersonal Rejection (IR), Unrealistic Relationship Expectations (URE) and Interpersonal Misperception (IM), and loneliness, which is the mediator variable, and model 1 was shown. Accordingly, IR positively, IM, and URE negatively had significant effects on loneliness ($B = 0.362, B = -0.074, B = -0.038, p < 0.001, p < 0.001, p < 0.01$, respectively). In Model 2, the effect of interpersonal rejection, interpersonal misperception, and unrealistic relationship expectations, independent variables, on satisfaction with life, which is the dependent variable, was analyzed. Accordingly, IR negatively and IM positively had significant effects on satisfaction with life ($B = -0.291, B = 0.093, p < 0.001, p < 0.01$, respectively). In Model 3, the effects of independent, mediator, and interaction (Ln X Age) variables on satisfaction with life were analyzed. Accordingly, it has been found that IR and interaction (Ln X Age) variables are significant ($B = -0.085, B = 0.004, p < 0.05, p < 0.05$, respectively).

Table 3. Main Regression Effects on Loneliness and Satisfaction with Life.

Variable	Model 1: Ln			Model 2: SWL			Model 3: SWL		
	B	SE	p	B	SE	p	B	SE	p
(Constant)	1.365	0.104	0.000	3.458	0.253	0.000	4.863	0.407	0.000
Gender	−0.049	0.021	0.016	−0.014	0.050	0.778	−0.037	0.049	0.446
Age	0.002	0.001	0.104	0.006	0.003	0.036	0.007	0.003	0.014
Education	0.006	0.014	0.663	−0.032	0.035	0.362	−0.022	0.034	0.515
Marital Status	−0.040	0.029	0.169	0.296	0.071	0.000	0.284	0.069	0.000
Number of Siblings	0.014	0.005	0.009	−0.010	0.013	0.435	0.000	0.013	0.989
IR	0.362	0.014	0.000	−0.291	0.034	0.000	−0.085	0.043	0.048
IM	−0.074	0.012	0.000	0.093	0.030	0.002	0.049	0.030	0.103
URE	−0.038	0.013	0.003	−0.003	0.031	0.931	−0.025	0.030	0.413
Ln							−0.890	0.176	0.000
Ln X Age							0.004	0.002	0.037
F		90.14			17.24			20.41	
p		<0.001			<0.001			<0.001	
R2		0.427			0.125			0.174	

Notes. IR = Interpersonal Rejection, IM = Interpersonal Misperception, URE = Unrealistic Relationship Expectations, Ln = Loneliness, SWL = Satisfaction with Life, Ln X Age = Loneliness X Age (Interaction).

3.4. Indirect Regression Analysis

For mediation analysis, direct regression analyses were conducted among the independent, mediator, and dependent variables, as seen in Table 3. According to these results, the mediation effect was found through IR, IM, and URE. The independent IR, IM, UR variables continued their effect on the satisfaction with life dependent variable through the Ln mediator variable, as seen in Table 4. Ln variable had a significant effect as a mediator in the effect of dependent variables on satisfaction with life. While IR was partially mediated in the mediation analysis, the full mediation of the others was determined. The moderator effect of age on the effect of loneliness on satisfaction with life was analyzed, and the mediating results were reported conditionally in Table 4. All indirect relationships were significant over the $\pm$ standard deviation of the mean of age, as shown in Table 4. The ULCI and LLCI values in the table are significant since they do not pass through zero [110].

Table 4. Indirect Effects of Dependent Variables on Satisfaction with Life.

Moderator		IV.		Mediator		DV.	Uns. Effect	SE	LLCI	ULCI	
Low	Age	IR	>	Ln	>	SWL	−0.2502	0.0376	−0.3228	−0.1781	Sign.
Av.	Age	IR	>	Ln	>	SWL	−0.2061	0.0304	−0.2662	−0.1484	Sign.
High	Age	IR	>	Ln	>	SWL	−0.1619	0.0387	−0.2388	−0.0882	Sign.
Low	Age	IM	>	Ln	>	SWL	0.0520	0.0118	0.0305	0.0766	Sign.
Av.	Age	IM	>	Ln	>	SWL	0.0428	0.0098	0.0255	0.0633	Sign.
High	Age	IM	>	Ln	>	SWL	0.0337	0.0101	0.0161	0.0550	Sign.
Low	Age	URE	>	Ln	>	SWL	0.0254	0.0099	0.0072	0.0463	Sign.
Av.	Age	URE	>	Ln	>	SWL	0.0209	0.0080	0.0060	0.0376	Sign.
High	Age	URE	>	Ln	>	SWL	0.0164	0.0070	0.0043	0.0317	Sign.

Notes. IR = Interpersonal Rejection, IM = Interpersonal Misperception, URE = Unrealistic Relationship Expectations, Ln = Loneliness, SWL = Satisfaction with Life.

3.5. Moderation Analysis

In our study, the moderation effect of age on the effect of loneliness, which is the mediator variable, on life satisfaction, was tested as seen in Table 3 and Model 3. For this purpose, the interaction variable, which is the product of loneliness and age, was produced. In Model 3, the values of the Ln X Age interaction variable were shown. Accordingly, the effect of the interaction variable created by loneliness and age multiplication on satisfaction with life was significant ($B = 0.004$, $p < 0.05$). According to Figure 2, younger people in the sample's life satisfaction decreases as loneliness increases, whereas the life satisfaction of the age increases. This is because as age increases, individuals see and accept change.

However, this situation is different for younger people in the sample. Because younger people have more energy and socialization opportunities. Therefore, increased loneliness reduces the satisfaction with life in younger individuals.

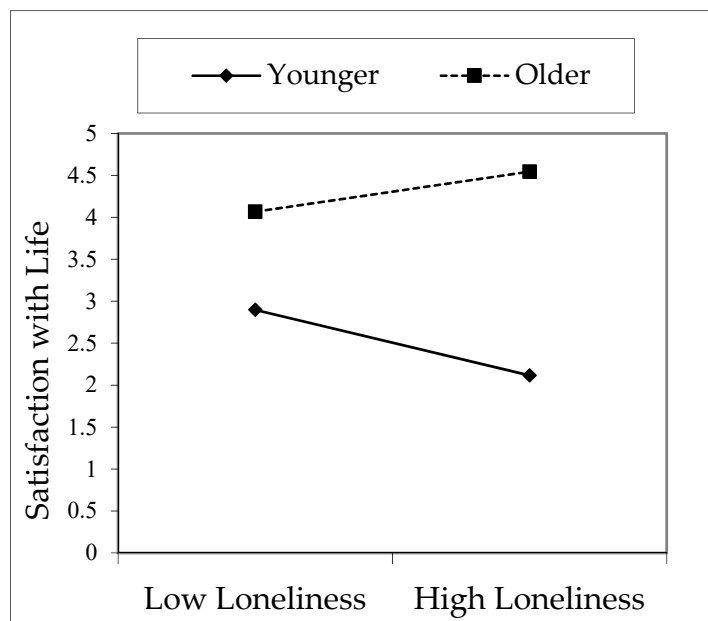


Figure 2. Interaction Variable Effect on SWL.

4. Discussion

This study was conducted to understand the relationship of loneliness between interpersonal cognitive distortions and life satisfaction. In the analysis process, questions such as gender, age, marital status, education, and the number of siblings were used as control variables. All hypotheses are supported, except for hypothesis 2 and hypothesis 7. Hypothesis 1 revealed the positive relationship between interpersonal rejection (avoidance of intimacy) and loneliness. Individuals who avoid building close relationships become lonelier as a result. The behavior of negatively perceiving and interpreting the intentions and interactions of others in interpersonal relationships is in line with interpersonal rejection (avoidance of intimacy) and prevents the development of quality relationships [89,111–113]. Therefore, loneliness results from interpersonal rejection (avoidance of intimacy) [80].

Hypothesis 2 suggested that the unrealistic relationship expectation would increase loneliness. However, according to the results of this study, the unrealistic relationship expectation reduces loneliness. Although there are studies by Young [114] stating that one of the cognitive distortions that cause loneliness is unrealistic expectations, Kılıç and Sevim found that individuals with low loneliness scores found high unrealistic relationship expectations [11]. Although the hypothesis was rejected, it is seen that individuals increase their expectations in relationships and want more performance to avoid loneliness. In particular, Cutrona states that individuals whose needs and expectations are met in relationships experience less loneliness and states that perception of worth and social integration help to avoid being alone [115]. Moreover, it is known that lonely people are less aware of and less interested in their partners than non-lonely individuals [116,117]. Hypothesis 3 emphasizes that interpersonal misperception (mind-reading) tendency will reduce loneliness. According to the results, increased interpersonal misperception (mind-reading) in social relations leads to a decrease in loneliness. Although there is no clear explanation as to whether interpersonal misperception (mind-reading) is a correct behavior in relationships, it is stated that interpersonal misperception (mind-reading) is the right thing to understand high relationship satisfaction and intimacy between two individuals [11,118].

Hypothesis 4 expected a negative relationship between loneliness and life satisfaction. According to the results, loneliness is an important determinant of life satisfaction. Many studies in the literature support the negative relationship between loneliness and life satisfaction [86–91]. There is a parallel between extroversion and subjective well-being between personal characteristics [119]. In addition, studies conducted between different cultures show a negative relationship between loneliness and life satisfaction [120]. Hypothesis 5 argued that there would be some age-related changes in the interaction between loneliness and life satisfaction. Therefore, we analyzed age as a moderator. According to the results, as age increases, both loneliness and life satisfaction increase. In young people, life satisfaction decreases while loneliness increases. Although it is seen in the literature that loneliness increases and life satisfaction decrease due to aging, many studies have given results contrary to this opinion [2,92–97]. Turan et al., in a study including the loneliness variable, found that people under the age of 20 have less life satisfaction than individuals over 20 [121]. During the aging process, individuals tend to isolate themselves because they cannot keep up with society [122]. Social isolation is an indicator of loneliness and is defined as one of the main problems of the aging process [123]. These disadvantages are part of the aging process, and individuals can live a better life if they accept this situation. It is known in the literature that various activities can compensate for psycho-social losses in the aging process [2,95–97]. Young people react to loneliness more differently than older people. Young people want more friendships and desire to participate in more activities. When this desire isn't realized, more loneliness and less life satisfaction arise [124]. Because unsatisfactory social relationships are determinative for loneliness [107]. Moreover, society is in a constant state of change, and this rapid change causes young people's social skills to develop slower. Lack of social skills prevents young people from adapting to society, problems, or situations, and loneliness emerges as a result [125]. On the other hand, the identity crisis among young people and young adults also causes loneliness [126]. And all these psycho-social problems negatively affect life satisfaction [127].

Hypothesis 6 suggested that interpersonal rejection (avoidance of intimacy) behavior would reduce life satisfaction. Our study results confirm this hypothesis. It is not a coincidence that the life satisfaction of individuals who avoid establishing close relationships decreases. Avoiding intimacy makes individuals feel bad and causes more depressive feelings [128]. Hypothesis 7 expected a negatively significant relationship between unrealistic relationship expectation and life satisfaction. However, the current results show that there is no statistically significant relationship. This negative relationship is not significant, and the reason for this is thought to be related mainly to the pandemic process. During the pandemic process, individuals stayed at home more and spent more time with their families. Therefore, it was suggested that violence and neglect in the family might occur [129,130]. While individuals tried to adjust to the challenges of the pandemic, there was more violence within the family and more communication difficulties between couples [14]. With Covid, stress, anxiety, and depression have increased, and life satisfaction has decreased [131]. Therefore, the deterioration in relationships and the decrease in life satisfaction are blurred by Covid. Consequently, it is thought that the desired result is not achieved.

Hypothesis 8 assumed that the interpersonal misperception (mind-reading) approach in everyday relationships would increase life satisfaction. It has been confirmed by the present results that correct interpersonal misperception (mind-reading) behavior has positive effects on life satisfaction. Although no studies in the literature directly emphasize the relationship between mind reading and life satisfaction, there are some indirect studies. Hamamcı conducted a study that found a positive relationship between marital satisfaction and interpersonal misperception (mind-reading) [132]. It can be said that it has a close relationship with empathy, as mind-reading means understanding what other people think and feel and waiting to be understood for their feelings and thoughts [133]. A study conducted by Marilaf Caro et al. [134] found a positive relationship between empathy and life satisfaction. On the other hand, the ability to understand and interpret the feelings, thoughts, and feelings of themselves and others is defined as emotional intelligence [135].

Previous studies have determined a positive relationship between emotional intelligence and life satisfaction [136,137].

Hypothesis 9 stated the role of loneliness as a mediator in the relationship between interpersonal cognitive distortions (interpersonal rejection, interpersonal misperception, and unrealistic relationship expectation) and life satisfaction. According to the results of the present study, loneliness has a mediation effect. Previous studies have examined the relationship between interpersonal cognitive distortions and loneliness, life satisfaction and loneliness, and interpersonal cognitive distortions and life satisfaction [80–83,85–91,98–100]. Moreover, some studies have examined loneliness as the mediating variable between life satisfaction and other variables [138–140]. The literature and our results both show that loneliness is determinant for cognitive distortions and life satisfaction. However, in the previous studies, loneliness wasn't examined in a mediating role between cognitive distortions and life satisfaction, and therefore we established this model. Lonely individuals experience more cognitive distortions and experience less life satisfaction through this. Lonely individuals generate unrealistic thoughts, and generating unrealistic thoughts prevents building healthy relationships [81,82]. As a result, this creates more loneliness and less life satisfaction [83,98–100]. In addition to these consequences caused by cognitive distortions, loneliness also reduces life satisfaction [86–91]. This relationship shows the mediation of loneliness and how cognitive distortions reduce life satisfaction. Historically, the effect on X in Y has been the subject of curiosity by many researchers. If X affects Y, it has also been investigated how this effect occurs [141]. In this direction, another variable (M) has emerged, and it has been suggested that this variable can answer the question of “How” occurs in the relationship between X and Y. In the present study, loneliness provided an answer to the “how” question thanks to its mediation effect.

We generated two research questions. The first one is RQ1: “How do cognitive distortions affect satisfaction with life in Turkish society during Covid-19?”. Many studies show that there is a negative relationship between cognitive distortions and life satisfaction. The indications on this issue are not surprising. Because cognitive distortions are a type of disorder that occurs in emotions, thoughts, and behaviors and can trigger many mental and psychological problems. In particular, unrealistic thoughts may arise in interpersonal relationships and therefore life satisfaction may decrease. Although previous studies contain different perspectives on this subject, the results may vary according to the period. Especially with the emergence of Covid-19, individuals began to evolve into a more isolated lifestyle. A more isolated lifestyle led to increased loneliness. For this reason, we tried to understand the effect of loneliness between cognitive distortions and life satisfaction in Turkish society during the Covid-19. In the current study, we found the mediating effect of loneliness between cognitive distortions and life satisfaction.

On the other hand, the second of these research questions is RQ2: “How does age affect loneliness and life satisfaction in Turkish society during the Covid-19?”. Along with Covid-19, there have been major changes in habits, communication styles, and values. The restrictions imposed by the states during the Covid-19 period affected all segments of the society, especially the young and the elderly [142]. Although these restrictions were implemented to ensure the sustainability of public health, this was a problem for young and old individuals who had to live in more isolation. Because these individuals suffered more loneliness and had less life satisfaction. For this reason, we tried to understand the effect of age between loneliness and life satisfaction in Turkish society during the Covid-19 in our model. In the present study, we found the moderating effect of age between loneliness and life satisfaction. In our study, we understood that young people are more affected than the elderly, and the satisfaction with life levels of the young people decreases. In contrast, It was observed that the satisfaction with life levels of the elderly did not decrease. This may be due to the fact that the expectations of the elderly are lower than those of the young. The situation can be explained by the inability of young people to go to school, be deprived of job opportunities, not socialize, and generally increase career concerns during the Covid-19 period. Therefore, the satisfaction with life of young people has tended to decrease.

5. Limitations and Suggestions for Future Studies

The current study data were collected in a specific process, and we recommend cross-period comparisons to reach more precise results. In the pre-pandemic period, we did not know the levels of individuals experiencing loneliness and cognitive distortions, and we were not sure of previous studies. It is impossible to compare before and after in processes that develop suddenly, such as a pandemic. Therefore, future research may reveal more specific results by focusing on longitudinal and mixed methods. In addition, this study was mainly conducted with university students because it is easy to reach, and in the moderation analysis, ± 1 standard deviation of the age of the sample was taken. Therefore, the results of the study cannot be generalized. Future studies may provide more general results surveying with a larger sample group. We define loneliness and cognitive distortions as global problems. However, factors such as culture and values, living standards, family types, socio-economic status, religion, and beliefs may cause different results. Therefore, the results must not be generalized.

6. Conclusions

This study has proven the negative effects of loneliness on cognitive distortions and decreased life satisfaction within these conditions. The current results of the study should be taken into account by policymakers and practitioners, and future planning should be done according to these results. Unless measures for loneliness are taken, the consequences will be permanent and long-term. Since it is known that processes such as pandemics that occur at a certain time increase loneliness due to social isolation, these social and psychological consequences are predicted. This study provides several clues for public health and social problems. Therefore, the current study gives policymakers and academics an idea of what can be done against the effects of loneliness and cognitive distortions and the direction of future research. Because loneliness triggers many mental and psychological disorders, and cognitive distortions prevent development of healthy relationships. In particular, identifying the source of many public health problems such as divorce, crime, and even drug addiction is useful to avoid these problems. Therefore, our research topic is essential in terms of the sustainability of public health and the prevention of social issues. Studies emphasize social support among variables such as loneliness and life satisfaction, and it is known that individuals with social support experience lower loneliness and higher life satisfaction [138]. When factors such as the protection of the family structure, the development of intimate neighborly relations, and the increase of solidarity are considered as social support, it is needed to develop policies on these factors.

Author Contributions: Conceptualization, O.K. and O.M.Ş.; methodology, O.M.Ş.; formal analysis, O.K. and O.M.Ş.; investigation, O.M.Ş.; resources, O.M.Ş.; data curation, O.K.; writing—original draft preparation, O.M.Ş.; writing—review and editing, O.K. and O.M.Ş.; administration, O.K.; final revision M.Z.Y. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Jo Cox Commission. *Compating Loneliness One Conversation at a Time: A Call to Actions*; Jo Cox Commission: London, UK, 2017.
2. Bergefurt, L.; Kemperman, A.; van den Berg, P.; Borgers, A.; van der Waerden, P.; Oosterhuis, G.; Hommel, M. Loneliness and Life Satisfaction Explained by Public-Space Use and Mobility Patterns. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4282. [[CrossRef](#)]
3. Griffin, J. *The Lonely Society*; Mental Health Foundation: London, UK, 2010.

4. Doğruluk Payı. 2017. Available online: <https://www.dogrulukpayi.com/bulten/her-yasta-ve-sinifta-yalnizlik> (accessed on 4 April 2021).
5. Varga, T.V.; Bu, F.; Dissing, A.S.; Elsenburg, L.K.; Bustamante, J.J.H.; Matta, J.; van Zon, S.K.R.; Brouwer, S.; Bültmann, U.; Fancourt, D.; et al. Loneliness, worries, anxiety, and precautionary behaviours in response to the COVID-19 pandemic: A longitudinal analysis of 200,000 Western and Northern Europeans. *Lancet Reg. Health Eur.* **2021**, *2*, 100020. [\[CrossRef\]](#) [\[PubMed\]](#)
6. Peplau, L.A.; Perlman, D. Theoretical Approaches to Loneliness. In *Loneliness: A Sourcebook of Current Theory, Research and Therapy*; Wiley: New York, NY, USA, 1982; pp. 123–134.
7. Holt-Lunstad, J.; Smith, T.B.; Baker, M.; Harris, T.; Stephenson, D. Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. *Perspect. Psychol. Sci.* **2015**, *10*, 227–237. [\[CrossRef\]](#)
8. Buluş, M. Üniversite Öğrencilerinde Yalnızlık. *Pamukkale Üniversitesi Eğitim Fakültesi Derg.* **1997**, *3*, 82–90.
9. Killgore, W.D.S.; Cloonan, S.A.; Taylor, E.C.; Dailey, N.S. Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry Res.* **2020**, *290*, 113117. [\[CrossRef\]](#) [\[PubMed\]](#)
10. Yarcheski, A.; Mahon, N.E.; Yarcheski, T.J. Stress, Hope, and Loneliness in Young Adolescents. *Psychol. Rep.* **2011**, *108*, 919–922. [\[CrossRef\]](#)
11. Kılıç, H.; Sevim, S. Loneliness and Cognitive Distortions Among Adolescents. *Ankara Univ. J. Fac. Educ. Sci.* **2005**, *38*, 69–88. [\[CrossRef\]](#)
12. Çivan, İ. Üniversite Öğrencilerinin Kişilerarası İlişkilerle İlgili Bilişsel Çarpıtmaları ve Başkalarını Bağışlama Davranışlarının İncelenmesi; Gazi Üniversitesi: Ankara, Turkey, 2013.
13. Erok, M. İlişkilere İlişkin Bilişsel Çarpıtmalar, İlişkiye Dair İnançlar, Kişilerarası Öfke, Kişilerarası İlişkiler, Problem Çözme ve Evlilik Çatışması; Maltepe Üniversitesi: İstanbul, Turkey, 2013.
14. Aydın, A.; Akgün, B.M. Interpersonal cognitive distortions and family role performances in spouses during COVID-19 pandemic process in Turkey. *Perspect. Psychiatr. Care* **2021**, 1–8. [\[CrossRef\]](#)
15. Warren, B.J. The Synergistic Influence of Life Experiences and Cultural Nuances on Development of Depression: A Cognitive Behavioral Perspective. *Issues. Ment Health Nurs.* **2020**, *41*, 3–6. [\[CrossRef\]](#)
16. Çelik, Ç.B.; Odacı, H. The relationship between problematic internet use and interpersonal cognitive distortions and life satisfaction in university students. *Child. Youth Serv. Rev.* **2013**, *35*, 505–508. [\[CrossRef\]](#)
17. Serin, N.B.; Serin, O.; Özbaş, L.F. Predicting university student's life satisfaction by their anxiety and depression level. *Procedia Soc. Behav. Sci.* **2010**, *9*, 579–582. [\[CrossRef\]](#)
18. Kuzucu, Y.; Sariat Ertürk, Ö.; Şimşek, Ö.F.; Gökdaş, İ. Cognitive distortions and problematic internet use connection: Examining the mediator roles of loneliness and social anxiety by partialling out the effects of social desirability. *J. Evid. Based Psychother.* **2020**, *20*, 51–76. [\[CrossRef\]](#)
19. Ağır, M. Üniversite Öğrencilerinin Bilişsel Çarpıtma Düzeyleri ile Problem Çözme Becerileri ve Umutsuzluk Düzeyleri Arasındaki İlişki; İstanbul Üniversitesi: İstanbul, Turkey, 2007.
20. Akin, A. Self-Compassion and Interpersonal Cognitive Distortions. *Hacet. Egit. Derg.* **2010**, *39*, 1–9.
21. Rnic, K.; Dozois, D.J.A.; Martin, R.A. Cognitive distortions, humor styles, and depression. *Eur. J. Psychol.* **2016**, *12*, 348–362. [\[CrossRef\]](#)
22. Freeman, A.; Dattilio, F.M. *Comprehensive Casebook of Cognitive Therapy*; Plenum Press: New York, NY, USA, 1992.
23. Goodie, A.S.; Fortune, E.E. Measuring cognitive distortions in pathological gambling: Review and meta-analyses. *Psychol. Addict. Behav.* **2013**, *27*, 730–743. [\[CrossRef\]](#)
24. Fortune, E.E.; Goodie, A.S. Cognitive distortions as a component and treatment focus of pathological gambling: A review. *Psychol. Addict. Behav.* **2012**, *26*, 298–310. [\[CrossRef\]](#)
25. Haaga, D.A.F.; Davison, G.C. An Appraisal of Rational-Emotive Therapy. *J. Consult. Clin. Psychol.* **1993**, *61*, 215–220. [\[CrossRef\]](#)
26. Kopec, A.M. Rational emotive behavior therapy in a forensic setting: Practical issues. *J. Ration. Cogn. Ther.* **1995**, *13*, 243–253. [\[CrossRef\]](#)
27. Burger, J.M. *Kişilik*; Sarıoğlu, E., Ed.; Kaktüs Yayınları: İstanbul, Turkey, 2006.
28. Beck, A.T. Thinking and Depression: I. *Idiosyncratic Content and Cognitive Distortions*. *Arch. Gen. Psychiatry* **1963**, *9*, 324–333. [\[CrossRef\]](#)
29. Mahalik, J.R. Incorporating a gender role strain perspective in assessing and treating men's cognitive distortions. *Prof. Psychol. Res. Pract.* **1999**, *30*, 333–340. [\[CrossRef\]](#)
30. Nas, C.N.; Brugman, D.; Koops, W. Measuring Self-Serving Cognitive Distortions with the "How I Think" Questionnaire. *Eur. J. Psychol. Assess.* **2008**, *24*, 181–189. [\[CrossRef\]](#)
31. Mobini, S.; Pearce, M.; Grant, A.; Mills, J.; Yeomans, M.R. The relationship between cognitive distortions, impulsivity, and sensation seeking in a non-clinical population sample. *Pers. Individ. Dif.* **2006**, *40*, 1153–1163. [\[CrossRef\]](#)
32. Milevsky, A. Cognitive-Behavior Interventions for Adult Sibling Issues. In *Sibling Issues in Therapy*; Palgrave Macmillan: London, UK, 2016; pp. 140–159. [\[CrossRef\]](#)
33. Shnek, Z.M.; Foley, F.W.; LaRocca, N.G.; Gordon, W.A.; DeLuca, J.; Schwartzman, H.G.; Halper, J.; Lennox, S.; Irvine, J. Helplessness, self-efficacy, cognitive distortions, and depression in multiple sclerosis and spinal cord injury. *Ann. Behav. Med.* **1997**, *19*, 287–294. [\[CrossRef\]](#) [\[PubMed\]](#)
34. Pamuk, M.; Durmuş, E. Investigation of burnout in marriage. *J. Hum. Sci.* **2015**, *12*, 162–177. [\[CrossRef\]](#)

35. DiGiuseppe, R.; Zee, C. A rational-emotive theory of marital dysfunction and marital therapy. *J. Ration. Ther.* **1986**, *4*, 22–37. [\[CrossRef\]](#)
36. Leung, P.W.L.; Poon, M.W.L. Dysfunctional schemas and cognitive distortions in psychopathology: A test of the specificity hypothesis. *J. Child. Psychol. Psychiatry Allied Discip.* **2001**, *42*, 755–765. [\[CrossRef\]](#)
37. Safran, J.D. Towards a refinement of cognitive therapy in light of interpersonal theory: I. *Theory. Clin. Psychol. Rev.* **1990**, *10*, 87–105. [\[CrossRef\]](#)
38. Hamamci, Z.; Büyüköztürk, S. The Interpersonal Cognitive Distortions Scale: Development and psychometric characteristics. *Psychol. Rep.* **2004**, *95*, 291–303. [\[CrossRef\]](#)
39. Page, R.M.; Cole, G.E. Demographic predictors of self-reported loneliness in adults. *Psychol. Rep.* **1991**, *68*, 939–945. [\[CrossRef\]](#)
40. Cacioppo, J.T.; Cacioppo, S. The growing problem of loneliness. *Lancet* **2018**, *391*, 426. [\[CrossRef\]](#)
41. Goswick, R.A.; Jones, W.H. Components of loneliness during adolescence. *J. Youth Adolesc.* **1982**, *11*, 373–383. [\[CrossRef\]](#) [\[PubMed\]](#)
42. De Jong Gierveld, J. A review of loneliness: Concept and definitions, determinants and consequences. *Rev. Clin. Gerontol.* **1998**, *8*, 73–80. [\[CrossRef\]](#)
43. Barreto, M.; Victor, C.; Hammond, C.; Eccles, A.; Richins, M.T.; Qualter, P. Loneliness around the world: Age, gender, and cultural differences in loneliness. *Pers. Individ. Dif.* **2021**, *169*, 110066. [\[CrossRef\]](#)
44. Weiss, R.S. Reflections on the present state of loneliness research. *J. Soc. Behav. Pers.* **1987**, *2*, 1–16.
45. Gierveld, J.D.J.; Van Tilburg, T.; Dykstra, P.A. Loneliness and Social Isolation. In *The Cambridge Handbook of Personal Relationships*; Cambridge University Press: Cambridge, UK, 2006; pp. 485–500.
46. Anderson, C.A.; Harvey, R.J. Brief Report: Discriminating Between Problems in Living: An Examination of Measures of Depression, Loneliness, Shyness, and Social Anxiety. *J. Soc. Clin. Psychol.* **1988**, *6*, 482–491. [\[CrossRef\]](#)
47. Sadava, S.W.; Pak, A.W. Problem Drinking and Close Relationships During the Third Decade of Life. *Psychol. Addict. Behav.* **1994**, *8*, 251–258. [\[CrossRef\]](#)
48. Schumaker, J.F.; Krejci, R.C.; Small, L.; Sargent, R.G. Experience of loneliness by obese individuals. *Psychol. Rep.* **1985**, *57*, 1147–1154. [\[CrossRef\]](#)
49. Weber, B.; Metha, A.; Nelsen, E. Relationships among Multiple Suicide Ideation Risk Factors in College Students. *J. Coll. Stud. Psychother.* **1997**, *11*, 49–64. [\[CrossRef\]](#)
50. van Tilburg, T.G.; Steinmetz, S.; Stolte, E.; van der Roest, H.; de Vries, D.H. Loneliness and Mental Health During the COVID-19 Pandemic: A Study Among Dutch Older Adults. *J. Gerontol. Ser. B* **2020**, *76*, e249–e255. [\[CrossRef\]](#)
51. Horigian, V.E.; Schmidt, R.D.; Feaster, D.J. Loneliness, Mental Health, and Substance Use among US Young Adults during COVID-19. *J. Psychoact. Drugs* **2020**, *53*, 1–9. [\[CrossRef\]](#)
52. Chang, E.C.; Chang, O.D.; Martos, T.; Sallay, V.; Lee, J.; Stam, K.R.; Batterbee, C.N.-H.; Yu, T. Family Support as a Moderator of the Relationship Between Loneliness and Suicide Risk in College Students: Having a Supportive Family Matters! *Fam. J.* **2017**, *25*, 257–263. [\[CrossRef\]](#)
53. Erzen, E.; Çikrikci, Ö. The effect of loneliness on depression: A meta-analysis. *Int. J. Soc. Psychiatry* **2018**, *64*, 427–435. [\[CrossRef\]](#)
54. Berg-Weger, M.; Morley, J.E. Loneliness in Old Age: An Unaddressed Health Problem. *J. Nutr. Health Aging* **2020**, *24*, 243–245. [\[CrossRef\]](#)
55. Rokach, A.; Matalon, R.; Rokach, B.; Safarov, A. The effects of gender and marital status on loneliness of the aged. *Soc. Behav. Pers.* **2007**, *35*, 243–254. [\[CrossRef\]](#)
56. Ahn, J. Unequal Loneliness in the Digitalized Classroom: Two Loneliness Effects of School Computers and Lessons for Sustainable Education in the E-Learning Era. *Sustainability* **2020**, *12*, 7889. [\[CrossRef\]](#)
57. Yang, F. Widowhood and loneliness among Chinese older adults: The role of education and gender. *Aging Ment. Health* **2020**, *25*, 1214–1223. [\[CrossRef\]](#)
58. Ponzetti, J.J.J.; James, C.M. Loneliness and Sibling Relationships. *J. Soc. Behav. Pers.* **1997**, *12*, 103–112.
59. Shin, D.C.; Johnson, D.M. Avowed happiness as an overall assessment of the quality of life. *Soc. Indic. Res.* **1978**, *5*, 475–492. [\[CrossRef\]](#)
60. Diener, E. Guidelines for National Indicators of Subjective Well-Being and Ill-Being. *J. Happiness Stud.* **2006**, *7*, 397–404. [\[CrossRef\]](#)
61. Meeberg, G.A. Quality of life: A concept analysis. *J. Adv. Nurs.* **1993**, *18*, 32–38. [\[CrossRef\]](#)
62. Dost, M.T. An Examination of Subjective Well-Being and Life Satisfaction of Students Attending to Universities in South Africa and Turkey. *Educ. Sci.* **2010**, *35*, 75–89.
63. Özer, M. A study on the life satisfaction of elderly individuals living in family environment and nursing homes. *Türk Geriatr. Derg.* **2004**, *7*, 33–36.
64. Rask, K.; Astedt-Kurki, P.; Laippala, P. Adolescent subjective well-being and realized values. *J. Adv. Nurs.* **2002**, *38*, 254–263. [\[CrossRef\]](#)
65. Gündogar, D.; Gul, S.S.; Uskun, E.; Demirci, S.; Keçeci, D. Üniversite öğrencilerinde Yaşam Doyumunu Yordayan Etkenlerin İncelenmesi. *Klin. Psikiyatr.* **2007**, *10*, 14–27.
66. Myers, D.G.; Diener, E. Who Is Happy? *Psychol. Sci.* **1995**, *6*, 10–19. [\[CrossRef\]](#)
67. McGhee, J.L. The Effects of Siblings on the Life Satisfaction of the Rural Elderly. *J. Marriage Fam.* **1985**, *47*, 85. [\[CrossRef\]](#)

68. Moksnes, U.K.; Espnes, G.A. Self-esteem and life satisfaction in adolescents—Gender and age as potential moderators. *Qual. Life Res.* **2013**, *22*, 2921–2928. [\[CrossRef\]](#)
69. Groot, W.; Brink, H.M. Van Den Age and Education Differences in Marriages and their Effects on Life Satisfaction. *J. Happiness Stud.* **2002**, *3*, 153–165. [\[CrossRef\]](#)
70. Ball, R.E.; Robbins, L. Marital Status and Life Satisfaction among Black Americans. *J. Marriage Fam.* **1986**, *48*, 389. [\[CrossRef\]](#)
71. Diener, E. Subjective well-being. *Psychol. Bull.* **1984**, *95*, 542–575. [\[CrossRef\]](#)
72. Yetim, Ü. *Kişisel Projelerin Organizasyonu ve Örüntüsü Açısından Yaşam Doyumu*; Ege Üniversitesi: Izmir, Turkey, 1992.
73. Kuppens, P.; Realo, A.; Diener, E. The Role of Positive and Negative Emotions in Life Satisfaction Judgment Across Nations. *J. Pers. Soc. Psychol.* **2008**, *95*, 66–75. [\[CrossRef\]](#)
74. Mechanic, D.; Bradburn, N.M. *The Structure of Psychological Well-Being*; Aldine: Chicago, IL, USA, 1970; Volume 35.
75. Diener, E.; Diener, M. Cross-cultural correlates of life satisfaction and self-esteem. *J. Pers. Soc. Psychol.* **1995**, *68*, 653–663. [\[CrossRef\]](#) [\[PubMed\]](#)
76. Veenhoven, R. Is happiness relative? *Soc. Indic. Res.* **1991**, *24*, 1–34. [\[CrossRef\]](#)
77. Beck, J. *Cognitive Behavior Therapy: Basics and Beyond*, 2nd ed.; The Guilford Press: New York, NY, USA, 2011.
78. Gizir, C.A. Üniversite Öğrencilerinin İlişki İnançlarının Cinsiyet ve Romantik İlişki Yaşama Durumlarına Göre İncelenmesi. *Eğitim Bilim* **2013**, *38*, 372–383.
79. Nasir, R.; Ahmad Zamani, Z.; Khairudin, R.; Wan Sulaiman, W.S.; Mohd Sani, M.N.; Amin, A.S. Depression, loneliness and cognitive distortion among young unwed pregnant women in Malaysia: Counseling implications. *Asian Soc. Sci.* **2016**, *12*, 104–109. [\[CrossRef\]](#)
80. Hamamcı, Z.; Duy, B. The Relationship Among Social Skills, Dysfunctional Attitudes, Irrational Beliefs, Interpersonal Cognitive Distortions and Loneliness. *Eurasian J. Educ. Res.* **2007**, *26*, 121–130.
81. Halamandaris, K.F.; Power, K.G. Individual differences, dysfunctional attitudes, and social support: A study of the psychosocial adjustment to university life of home students. *Pers. Individ. Dif.* **1997**, *22*, 93–104. [\[CrossRef\]](#)
82. Morahan-Martin, J. The relationship between loneliness and Internet use and abuse. *Cyberpsychology Behav.* **1999**, *2*, 431–439. [\[CrossRef\]](#)
83. Burns, D.D. *Intimate Connections*; Signet: New York, NY, USA, 1985.
84. Khaleque, A. Intimate Adult Relationships, Quality of Life and Psychological Adjustment. *Soc. Indic. Res.* **2004**, *69*, 351–360. [\[CrossRef\]](#)
85. Hamermesh, D.S. Life satisfaction, loneliness and togetherness, with an application to Covid-19 lock-downs. *Rev. Econ. Househ.* **2020**, *18*, 983–1000. [\[CrossRef\]](#)
86. Bozorgpour, F.; Salimi, A. State Self-Esteem, Loneliness and Life Satisfaction. *Procedia Soc. Behav. Sci.* **2012**, *69*, 2004–2008. [\[CrossRef\]](#)
87. Çivitci, N.; Çivitci, A.; FiYakali, N.C. Loneliness and life satisfaction in adolescents with divorced and non divorced parents. *Kuram Uygul. Eğit. Bilim.* **2009**, *9*, 513–525.
88. Goodwin, R.; Cook, O.; Yung, Y. Loneliness and life satisfaction among three cultural groups. *Pers. Relatsh.* **2001**, *8*, 225–230. [\[CrossRef\]](#)
89. Moore, D.W.; Schultz, N.R. Loneliness at adolescence: Correlates, attributions, and coping. *J. Youth Adolesc.* **1983**, *12*, 95–100. [\[CrossRef\]](#) [\[PubMed\]](#)
90. Neto, F. The satisfaction with life scale: Psychometrics properties in an adolescent sample. *J. Youth Adolesc.* **1993**, *22*, 125–134. [\[CrossRef\]](#)
91. Mellor, D.; Stokes, M.; Firth, L.; Hayashi, Y.; Cummins, R. Need for belonging, relationship satisfaction, loneliness, and life satisfaction. *Pers. Individ. Dif.* **2008**, *45*, 213–218. [\[CrossRef\]](#)
92. Pinto, J.M.; Fontaine, A.M.; Neri, A.L. The influence of physical and mental health on life satisfaction is mediated by self-rated health: A study with Brazilian elderly. *Arch. Gerontol. Geriatr.* **2016**, *65*, 104–110. [\[CrossRef\]](#)
93. Dykstra, P.A.; van Tilburg, T.G.; Gierveld, J.D.J. Changes in Older Adult Loneliness: Results From a Seven-Year Longitudinal Study. *Res. Aging* **2005**, *27*, 725–747. [\[CrossRef\]](#)
94. Ardel, M. Wisdom and life satisfaction in old age. *J. Gerontol. Ser. B Psychol. Sci. Soc. Sci.* **1997**, *52B*, 15–27. [\[CrossRef\]](#)
95. Carpentieri, J.D.; Elliott, J.; Brett, C.E.; Deary, I.J. Adapting to aging: Older people talk about their use of selection, optimization, and compensation to maximize well-being in the context of physical decline. *J. Gerontol. Ser. B Psychol. Sci. Soc. Sci.* **2017**, *72*, 351–361. [\[CrossRef\]](#)
96. Nimrod, G. Aging well in the digital age: Technology in processes of selective optimization with compensation. *J. Gerontol. Ser. B Psychol. Sci. Soc. Sci.* **2020**, *75*, 2008–2017. [\[CrossRef\]](#)
97. Wahl, H.W. Aging Successfully: Possible in Principle? Possible for all? Desirable for all? *Integr. Psychol. Behav. Sci.* **2020**, *54*, 251–268. [\[CrossRef\]](#)
98. Yüksel, A.; Bahadır-Yılmaz, E. Relationship between depression, anxiety, cognitive distortions, and psychological well-being among nursing students. *Perspect. Psychiatr. Care* **2019**, *55*, 690–696. [\[CrossRef\]](#) [\[PubMed\]](#)
99. Karabacak, A. Examination of relationship between interpersonal cognitive distortions and psychological wellbeing among emerging adulthood individuals. *Int. J. Soc. Sci. Educ. Res.* **2017**, *3*, 425–433. [\[CrossRef\]](#)

100. Yavuzer, Y.; Karatas, Z. Investigating the Relationship between Depression, Negative Automatic Thoughts, Life Satisfaction and Symptom Interpretation in Turkish Young Adults. In *Depression*; IntechOpen Limited: London, UK, 2017.
101. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 7th ed.; Pearson: London, UK, 2014.
102. Diener, E.; Emmons, R.A.; Larsen, R.J.; Griffin, S. The Satisfaction With Life Scale. *J. Pers. Assess.* **1985**, *49*, 71–75. [[CrossRef](#)] [[PubMed](#)]
103. Köker, S. *Normal ve Sorunlu Ergenlerin Yaşam Doyumu Düzeylerinin Karşılaştırılması*; Ankara Üniversitesi: Ankara, Turkey, 1991.
104. Russell, D.; Peplau, L.A.; Ferguson, M.L. Developing a Measure of Loneliness. *J. Pers. Assess.* **1978**, *42*, 290–294. [[CrossRef](#)]
105. Russell, D.; Peplau, L.A.; Cutrona, C.E. The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *J. Pers. Soc. Psychol.* **1980**, *39*, 472–480. [[CrossRef](#)]
106. Russell, D.W. UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *J. Pers. Assess.* **1996**, *66*, 20–40. [[CrossRef](#)]
107. Demir, A. UCLA Yalnızlık Ölçeğinin Geçerlik ve Güvenirliği. *Psikol. Derg.* **1989**, *7*, 14–18.
108. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis*, 2nd ed.; The Guilford Press: New York, NY, USA, 2018.
109. Dawson, J.F. Moderation in Management Research: What, Why, When, and How. *J. Bus. Psychol.* **2013**, *29*, 1–19. [[CrossRef](#)]
110. Hayes, A.F.; Rockwood, N.J. Conditional Process Analysis: Concepts, Computation, and Advances in the Modeling of the Contingencies of Mechanisms. *Am. Behav. Sci.* **2020**, *64*, 19–54. [[CrossRef](#)]
111. Hanley-Dunn, P.; Maxwell, S.; Santos, J. Interpretation of Interpersonal Interactions: The Influence of Loneliness. *Personal. Soc. Psychol. Bull.* **1985**, *11*, 445–456. [[CrossRef](#)]
112. Vaux, A. Social and Personal Factors in Loneliness. *J. Soc. Clin. Psychol.* **1988**, *6*, 462–471. [[CrossRef](#)]
113. Wilbert, J.R.; Rupert, P.A. Dysfunctional attitudes, loneliness, and depression in college students. *Cognit. Ther. Res.* **1986**, *10*, 71–77. [[CrossRef](#)]
114. Young, J.E. Loneliness, depression, and cognitive therapy: Theory and application. In *Loneliness: A Sourcebook of Current Theory, Research, and Therapy*; Peplau, L.A., Perlman, D., Eds.; Wiley Interscience: New York, NY, USA, 1982; pp. 279–403.
115. Cutrona, C.E. Transition to College: Loneliness and the Process of Social Adjustment. In *Loneliness: A Sourcebook of Current Theory, Research, and Therapy*; Peplau, L.A., Perlman, D., Eds.; Wiley Interscience: New York, NY, USA, 1982; pp. 291–309.
116. William, W.; Sloan, J.; Solano, C.H. The Conversational Styles of Lonely Males with Strangers and Roommates. *Personal. Soc. Psychol. Bull.* **2016**, *10*, 293–301. [[CrossRef](#)]
117. Ponzetti, J.J. Loneliness among College Students. *Fam. Relat.* **1990**, *39*, 336. [[CrossRef](#)]
118. Thomas, G.; Fletcher, G.J.O. Mind-Reading Accuracy in Intimate Relationships: Assessing the Roles of the Relationship, the Target, and the Judge. *J. Pers. Soc. Psychol.* **2003**, *85*, 1079–1094. [[CrossRef](#)]
119. Vittersø, J. Personality traits and subjective well-being: Emotional stability, not extraversion, is probably the important predictor. *Pers. Individ. Dif.* **2001**, *31*, 903–914. [[CrossRef](#)]
120. Schumaker, J.F.; Shea, J.D.; Monfries, M.M.; Groth-Marnat, G. Loneliness and life satisfaction in japan and australia. *J. Psychol. Interdiscip. Appl.* **1993**, *127*, 65–71. [[CrossRef](#)]
121. Turan, N.; Durgun, H.; Kaya, H.; Aşti, T.; Yilmaz, Y.; Gündüz, G.; Kuvan, D.; Ertaş, G. Relationship between nursing students' levels of internet addiction, loneliness, and life satisfaction. *Perspect. Psychiatr. Care* **2020**, *56*, 598–604. [[CrossRef](#)]
122. Dury, R. Social isolation and loneliness in the elderly: An exploration of some of the issues. *Br. J. Community Nurs.* **2014**, *19*, 125–128. [[CrossRef](#)]
123. Wenger, G.C.; Davies, R.; Shahtahmasebi, S.; Scott, A. Social isolation and loneliness in old age: Review and model refinement. *Ageing Soc.* **1996**, *16*, 333–358. [[CrossRef](#)]
124. Horowitz, L.M.; French, R.D.S.; Anderson, C.A. The Prototype of a Lonely Person. In *Loneliness: A Sourcebook of Current Theory, Research and Therapy*; Peplau, L.A., Perlman, D., Eds.; John Wiley & Sons: New York, NY, USA, 1982; pp. 183–205.
125. Ozben, S. Social skills, life satisfaction, and loneliness in Turkish university students. *Soc. Behav. Pers.* **2013**, *41*, 203–214. [[CrossRef](#)]
126. Erikson, E.H. *Childhood and Society*; Paladin Grafton Books: London, UK, 1993.
127. Proctor, C.L.; Linley, P.A.; Maltby, J. Youth life satisfaction: A review of the literature. *J. Happiness Stud.* **2009**, *10*, 583–630. [[CrossRef](#)]
128. Garris, C.P.; Ohbuchi, K.; Oikawa, H.; Harris, M.J. Consequences of interpersonal rejection: A cross-cultural experimental study. *J. Cross Cult. Psychol.* **2011**, *42*, 1066–1083. [[CrossRef](#)]
129. Douglas, M.; Katikireddi, S.V.; Taulbut, M.; McKee, M.; McCartney, G. Mitigating the wider health effects of covid-19 pandemic response. *BMJ* **2020**, *369*, m1557. [[CrossRef](#)] [[PubMed](#)]
130. Bradbury-Jones, C.; Isham, L. The pandemic paradox: The consequences of COVID-19 on domestic violence. *J. Clin. Nurs.* **2020**, *29*, 2047–2049. [[CrossRef](#)]
131. Satıcı, B.; Gocet-Tekin, E.; Deniz, M.E.; Satıcı, S.A. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. *Int. J. Ment. Health Addict.* **2020**, *8*, 1–9. [[CrossRef](#)] [[PubMed](#)]
132. Hamamci, Z. Dysfunctional relationship beliefs in marital satisfaction and adjustment. *Soc. Behav. Pers.* **2005**, *33*, 313–328. [[CrossRef](#)]

-
133. Howland, M.; Rafaeli, E. Bringing Everyday Mind Reading into Everyday Life: Assessing Empathic Accuracy with Daily Diary Data. *J. Pers.* **2010**, *78*, 1437–1468. [[CrossRef](#)]
 134. Marilaf Caro, M.; San-Martín, M.; Delgado-Bolton, R.; Vivanco, L. Empathy, loneliness, burnout, and life satisfaction in Chilean nurses of palliative care and homecare services. *Enferm. Clin.* **2017**, *27*, 379–386. [[CrossRef](#)]
 135. Mayer, J.D.; Roberts, R.D.; Barsade, S.G. Human abilities: Emotional intelligence. *Annu. Rev. Psychol.* **2008**, *59*, 507–536. [[CrossRef](#)]
 136. Palmer, B.; Donaldson, C.; Stough, C. Emotional intelligence and life satisfaction. *Pers. Individ. Dif.* **2002**, *33*, 1091–1100. [[CrossRef](#)]
 137. Srivastava, S.; Pathak, D. Impact of emotional intelligence on narcissism-satisfaction with life relationship: A study on Indian managers. *Int. J. Manag. Pract.* **2020**, *13*, 200–215. [[CrossRef](#)]
 138. Gan, S.W.; Ong, L.S.; Lee, C.H.; Lin, Y.S. Perceived Social Support and Life Satisfaction of Malaysian Chinese Young Adults: The Mediating Effect of Loneliness. *J. Genet. Psychol.* **2020**, *181*, 458–469. [[CrossRef](#)] [[PubMed](#)]
 139. Santino, N.; Larocca, V.; Hitzig, S.L.; Guilcher, S.J.T.; Craven, B.C.; Bassett-Gunter, R.L. Physical activity and life satisfaction among individuals with spinal cord injury: Exploring loneliness as a possible mediator. *J. Spinal Cord Med.* **2020**, 1–7. [[CrossRef](#)] [[PubMed](#)]
 140. Wang, L.; Yao, J. Life satisfaction and social anxiety among left-behind children in rural China: The mediating role of loneliness. *J. Community Psychol.* **2020**, *48*, 258–266. [[CrossRef](#)]
 141. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, 1st ed.; Guilford Press: New York, NY, USA, 2013.
 142. Koçak, O.; Koçak, Ö.E.; Younis, M.Z. The Psychological Consequences of COVID-19 Fear and the Moderator Effects of Individuals' Underlying Illness and Witnessing Infected Friends and Family. *Int. J. Environ. Res. Public Health* **2021**, *18*, 1836. [[CrossRef](#)]