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*Corresponding author: Chiara Meneghetti, General Psychology Department – DPG, University of Padova, Via Venezia, 8, 3151, PADOVA ITALIA; VAT NUMBER IT00742430283, Padova - Italy
E-mail: chiara.meneghetti@unipd.it

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HEALTH PSYCHOLOGY | RESEARCH ARTICLE

Does self-compassion relate to the fear of the future during the 2020 coronavirus pandemic? A cross-cultural study

Petra Jansen[1], Markus Siebertz[1], Philipp Hofmann[1], Kashef Zayed[2], Dalia Zayed[3], Faisal Abdelfattah[4], Laura M. Fernández-Méndez[5] and Chiara Meneghetti[6*]

Abstract: The coronavirus pandemic has a high impact on mental health, as for example, anxiety. It was the main goal of this study to investigate if rumination and worry mediate the possible relation of self-compassion and fear of the future in females and males of three European and three Middle Eastern countries during the coronavirus pandemic. 2765 men and women participated and answered questions regarding their fear of the future on the one hand and completed the reflection-rumination questionnaire, the Penn-state worry questionnaire, and the self-compassion scale. The results of a mediation analysis demonstrated a relation between self-compassion and fear of the future, which was mediated by worry but not by rumination, independent of gender and country. Furthermore, the fear of the future variable was predicted by different factors in each country. The only clear difference between the participants of the European and the Middle Eastern countries was that women show more fear of the future only in the European countries but not in the Middle Eastern countries. However, there were also differences between the three European and the three Middle Eastern countries. The results

ABOUT THE AUTHOR

Prof. Dr. Petra Jansen studied biological and social anthropology, psychology and mathematics at the Johannes-Gutenberg University of Mainz. She obtained her PHD and her habilitation in Experimental Psychology at the Universities of Duisburg-Essen and Düsseldorf on the investigation on spatial knowledge acquisition in children and adults using virtual environments. Since 2008 she is the head of the department of sport science in Regensburg. She teaches lectures in the course of studies "Applied Movement Science" and "Motion and Mindfulness". Her research focuses on the relation of motor and cognitive and emotional processes, gender difference, embodiment, mindfulness and sport psychology in general.

PUBLIC INTEREST STATEMENT

The coronavirus pandemic impacts mental health, as anxiety. The study investigates the impact of psychological factors, as self-compassion, rumination and worry, on anxiety about the future during the coronavirus pandemic. Self-compassion is the compassion towards us when we suffer, fail, or feel inadequate. Rumination is a repetitive form of thinking, in which one ponders of oneself and the possible causes for some failures. Worrying is a repeated thinking about risks and uncertainties. A total of 2757 men and women of three European and three Middle Eastern countries answered questionnaires assessing fear of the future, rumination, worry, and self-compassion. We found that self-compassion i) directly reduces the fear of the future; and ii) reduces the worry which in turn impact the fear of the future. This relation is independent of gender and country. The rumination does not intervene in the relation between self-compassion and fear of the future. This study suggest that self-compassion prevent fear of the future due to the coronavirus pandemic.

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indicate that in general, psychological consequences of the coronavirus pandemic should be investigated for each country separately. It does not to seem possible to infer results from one country to another country even on the same continent.

Subjects: Health Psychology; Multidisciplinary Psychology; Cross Cultural Psychology;

Keywords: self-compassion; rumination; worry; anxiety; Coronavirus Pandemic; European countries; Middle Eastern countries; gender differences

1. Introduction

The coronavirus pandemic brings a time of uncertainty to all people. It is well known that people react to pandemics with maladaptive behaviors, emotional distress, and defensive responses (Taylor, 2019). During the onset of the pandemic a considerable increase in anxiety and depressive symptoms even among healthy people is anticipated (Cullen et al., 2020). Wang et al. (2020) already demonstrated the psychological impact of the coronavirus pandemic in China, the country which was first affected by the COVID-19 outbreak. Also, in the post-illness state, depressed mood, and anxiety, among others, were commonly reported (Rogers et al., 2020). Cao et al. (2020) showed that during the beginning of the Pandemic in China, 0.9% of the 7.143 participating students manifested severe anxiety, 2.7% moderate anxiety and 21.3% mild anxiety in the last two weeks. The development of the pandemic had been very uncertain, and many people were expected to experience fear of the future. There is little knowledge of the fear of the future and the relevant psychological variables in different countries around the globe. For this reason, we investigated the fear of the future in six different countries: three European ones (Germany, Italy, and Spain) and three countries from the Middle East (Jordan, Oman, and Saudi Arabia) and the relation of the personal aspects of self-compassion, worry and rumination.

1.1. Self-compassion

Self-compassion refers to the compassion towards us when we suffer, fail, or feel inadequate. The whole concept of self-compassion can be differentiated in the aspects self-kindness instead of self-judgment, mindfulness instead of over-identification, and common humanity instead of isolation (Neff, 2003). Self-kindness refers to being gentle with oneself when experiencing pain or a harmful situation. Common humanity describes the insight that all humans experience in their life suffering and joy. Mindfulness relates to the non-judgmental presence in the moment. A meta-analysis of Ferrari et al. (2019) showed the effects of interventions on self-compassion and psychological outcomes (e.g., stress, depression etc.), revealing large significant improvements of rumination. For the reduction of stress, depression, self-criticism and anxiety the effects were moderate. With respect to gender differences, men had slightly higher self-compassion than women (Yarnell et al., 2015).

1.2. Rumination

Rumination describes a repetitive form of thinking, in which one ponders of oneself and the possible causes for some failures (Nolen-Hoeksema et al., 2008). It can deepen a sad and depressed mood (e.g., Watkins, 2008). The strongest evidence for a positive association might exist between rumination and anxiety (Thomsen, 2006). However, repeated focus on problems can, sometimes, be adaptive (Watkins & Roberts, 2020). Rumination is also related to cognitive processes, as a state of rumination is related to deficits in cognitive control (Whitmer & Gotlib, 2013). Small gender differences exist in rumination with higher scores for women compared to men. This holds also true for the brooding subtype of rumination, which involves more negative emotional thoughts and reflection with more negative thinking (Johnson & Whisman, 2013).

1.3. Worry

While rumination is mostly focused on past events, anxious worrying is described as the repeated thinking about risks and uncertainties, which lie in the future (Watkins, 2008). Like rumination, women express more worries than men (Robichaud et al., 2003). Rumination and worry share common processes, but they also differ in their past and future orientation. Some researchers have

often described worry as the cognitive component of anxiety (Martens et al., 1990). The studies evaluating whether rumination and worry relate to depression and anxiety have yielded different results. Some studies suggest that both concepts have a unique association and while other studies report undifferentiated relations (Raes, 2010).

1.4. Self-compassion, rumination and worry in different European and Middle Eastern countries

There are processes, which must be considered when investigating the influence of culture on different psychological outcomes. Different religious beliefs and cultural world views between European and Middle Eastern countries should be further examined. A recent study (San Martin et al., 2018) reported that Arabs were interdependent and holistic (like East Asians) but also self-assertive (like Westerners). Moreover, the same study found that the self-assertive tendency of Arabs is in service to interdependence. In contrast, the one of Westerners is in service of independence (San Martin et al., 2018).

It has been shown that self-compassion is linked to specific cultural features of the investigated culture rather than a general East-West difference (Neff et al., 2008). However, in the total score of self-compassion no differences could be found in a sample from Chinese and American undergraduates (Birkett, 2014). To the best of our knowledge there is only one study investigating the self-compassion in one European country (Germany) and one Middle Eastern country (Oman). This study examined self-compassion in physical education students from Oman compared to Germany (Jansen et al., 2020). Thus, there are currently no relevant studies dealing with worry and rumination differences within European as well as Middle Eastern countries.

1.5. The relation of rumination, worry, self-compassion and anxiety

Raes (2010) has investigated the aspects of rumination and worry as mediators of the relationship between self-compassion and depression and anxiety in healthy students. The relation between self-compassion and anxiety has been mediated by the aspect of brooding from the rumination scale and worrying, whereas the mediating effect of worry on anxiety was higher than the one of brooding. However, the conclusion that also rumination has an impact on anxiety (and not only on depressive symptoms) is in line with an earlier study (Roelofs et al., 2008). This relation is of high interest because it gives a hint on possible global mechanisms, which might influence the fear of the future during the coronavirus pandemic.

1.6. The main objective of this study

The main objective of this study is to investigate the relation between self-compassion and anxiety about the future during the coronavirus pandemic 2020 in three European and three Middle Eastern countries. In line with the study of San Martin et al. (2018) we chose three European countries because the inhabitants are assumed to be more independent than the inhabitants from the Arab world. Their strong sense of honor towards ones' in-group and the deep commitment to it might ease the psychological symptoms, which arise during the coronavirus pandemic.

The following hypotheses will be investigated:

(1) Due to the study of Jansen et al. (2020) it is assumed that people in the Middle Eastern countries have a higher self-compassion than people in the European countries. Slightly higher values for men are also expected (Yarnell et al., 2015). For rumination and worry higher values for women compared to men are assumed (Johnson & Whisman, 2013). No hypotheses regarding differences across cultures in rumination and worry could be formulated. A possible interaction effect between "gender" and "country" for the dependent measurements must be investigated.

(2) According to Raes (2010) a negative correlation between self-compassion and fear of the future is expected as well as that this relationship is mediated by worry and rumination.

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Furthermore, it must be investigated in an exploratory analysis if the factors country or gender influence the possible mediation effect.

(3) We also aimed to investigate if psychological factors (rumination, worry, self-compassion) and demographic factors (gender, religiosity, age etc.) predict fear of the future in each country.

2. Methods

2.1. Participants

In this study 2923 people from six countries (Germany, Italy, Jordan, Oman, Saudi Arabia, and Spain) participated. From the three Arabic countries, 106 (3.63%) had to be excluded because they had another nationality as the nationality in one of the countries in the Middle East where the survey was completed. 52 individuals (1.78%) were excluded because they had more than 15% missing values in any of the three psychological tests administered on this study (self-compassion, worry and rumination). Eight participants indicated to be "diverse in gender" and were excluded from the analysis due to the small number of participants in this category.

With a small effect size $f = .10$, an alpha-level of $p = .05$, a power of $1-ß = .95$, a power analysis using G-Power (Faul et al., 2007) for the ANOVA resulted in a total $n = 1984$ to detect a possible significant interaction effect regarding "gender" and "country" in the different dependent measurements of self-compassion, rumination and worry (Hypothesis 1). Therefore, a sample size of $n = 330$ for each country is sufficient.

The variables gender, age, and job distribution within each nationality are presented in Table 1.

Because the pandemic as well as the economic situation varies in each country, the relevant data are presented in Table 2.

The experiment was conducted according to the ethical guidelines of the Declaration of Helsinki. We communicated all considerations to the participants necessary to assess the question of ethical legitimacy of the study. The question of data retrieving in the online survey was coordinated with the data officer of the University of Regensburg. The project has been made public at OSF (https://osf.io/mhpgc/).

2.2. Material

2.2.1. Demographic questionnaire

In the demographic questionnaire gender, age, nationality, job (students, employee office work and employee physical efforts), religion, and the living status as well as the number of children in the

Table 1. Demographic data of the participants					
	Age mean[1] (SD)	**Gender % female**	**Job % student**	**Job % office worker**	**Job % physical worker**
Germany	30.22 (13.09)	72.28	65.19	28.82	5.99
Italy	38.27 (14.03)	79.23	27.46	55.36	17.19
Spain	34.37 (11.38)	79.09	46.37	32.22	21.42
Jordan	38.29 (13.36)	64.09	17.51	52.54	29.94
Oman	31.94 (10.34)	51.72	40.14	32.93	26.92
Saudi Arabia	33.17 (11.16)	75.19	47.13	29.89	22.99

[1]33.6% did not give any answer.

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Table 2. Pandemic (retrieved on the 30th of April, John Hopkins University) and economic situation in the different countries						
	Cases	Deaths	Death/ infection in %	Infection/ inhabitants in %	Gross domestic product (GDP) 2018 per capita	GDP 2018 per capita (adjusted for purchasing power)
Germany	162.375	6.563	4.04	0.19	47.662	52.379
Italy	205.463	27.967	13.61	0.34	34.321	39.662
Spain	239.639	24.543	10.24	0.51	30.733	40.172
Jordan	453	8	1.76	0.0045	4.721	9.431
Oman	2.348	11	0.47	0.049	18.970	47.933
Saudi Arabia	22.753	162	0.71	0.066	23.539	55.730

household were registered. Furthermore, it was measured if the participants prefer to be alone, how many times per week they engage in exercise or sport activities, if they suffer from any psychological disorders or attended any mindfulness activity before the beginning of the Coronavirus Pandemic. After this, they were asked about their state of work (yes/no/sometimes/work from home) since the onset of the coronavirus pandemic, if they felt depressed and bothered by little interest. The last two questions were taken from a primary care evaluation of mental disorders and show a good sensitivity and reasonable specificity for screening for depression (Arroll et al., 2003).

2.2.2. Self-compassion scale (SCS, *Neff, 2003*)
The SCS comprises 26 total items and includes on one side the positive elements of self-kindness, common humanity, and mindfulness, and on the other side the negative aspects of self-judgment, isolation, and over-identification. Responses had to be given on a Likert scale from 1 (almost never) to 5 (almost always). The three negative sub-scales were reverted for the calculation of the overall score. For all scales the means were calculated. Cronbach's alpha of the six subscales across the total sample in this study varies between .73 and .80, the mean for the total score varies for the six countries between .83 − .93. The reliability of the subscales and the total score in this study is in line with the English (Neff, 2003) and the German version (Hupfeld & Ruffieux, 2011).

2.2.3. Rumination-reflection questionnaire (RRQ, *Trapnell & Campbell, 1999*)
The RRQ has been developed by Trapnell and Campbell (1999) to examine how often the partici- pants ruminate and reflect about their past for a total of 12 items. Cronbach's Alpha for the reflection scale and for the rumination scale were both .90. In this study and in line with König (2012) the German-translated rumination scale from the rumination-reflection questionnaire was used because this scale allows the investigation of the rumination aspect and is not mixed-up with a reflection scale. Responses had to be given on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The scores were summed up to a total score, which can range between 12–60 points. Cronbach's alpha of the rumination scale varies for the six countries between .80 − .89.

2.2.4. Penn-state worry questionnaire (PSWQ, *Meyer et al., 1990*)
The PSWQ measures worry (Meyer et al., 1990). A value from 1 to 5 is assigned to a response depending upon whether the item is worded positively or negatively. It comprises 16 items, 11 of them stand for a worry tendency, and 5 items, which contradict a worry tendency. Those five items must be reversed. Responses had to be given on a Likert scale from 1 (not at all typical) to 5 (very typical). The maximum of 80 points, from 16 up, could be achieved and reflects a high worry. Cronbach's alpha of the PSWQ varies for the six countries between .89 − .93.

2.2.5. Fear of the future—Questions

The fear of the future was retrieved with the following three questions: "How anxious do you feel in the Coronavirus Pandemic situation?", "How worried are you about the future?" and "How much you think will Corona influence your future life?". Responses had to be given on a Likert scale from 1 (not at all) to 7 (very much). The mean of the three answers was calculated for the total score. Cronbach's alpha of this short questionnaire varies between .76 – .83 for five countries. Only for the German sample Cronbach's alpha was .61. This Cronbach's alpha is slightly lower than in the three tests mentioned above, which might be due to the small number of items (Bortz & Döring, 2006).

2.3. Procedure

Participants completed the measures from May 1st and ended May 14th of 2020. The online study was implemented at SoSciSurvey. Each questionnaire was provided in the respective language using a forward translation process and an expert panel of the authors included in this study, discussing the translation. For the Self-Compassion Scale, the Rumination-Reflection Questionnaire and the Penn-state worry questionnaire a validated German, Italian and Spanish versions exist and were used. For the three Arabic countries these four questionnaires were translated from English version specifically for this study. The fear of the future questions was translated from English version in the four respective languages for this study. Participants were recruited by the authors in each country through newsletters for students and social networks. After reading the study information, they accepted the consent form and completed the tests in the following order: Demographic Questionnaire with the fear of the future questions, Self-compassion Scale, Rumination Scale and the Penn-state worry questionnaire.

2.4. Statistical analysis

First, the descriptive values for religiosity, the practice of mindfulness and the answer of the two questions for the depressive mood are presented.

Second, four univariate analyses of variance for the dependent variables in the Rumination Reflection Questionnaire, Self-Compassion Scale, Penn-state Worry Questionnaire and Fear of the Future (total score), with the two between subject factors gender and country, were conducted.

Three correlations between self-compassion and the variables rumination, worry and fear of the future were calculated and additionally two correlations between fear of the future and the variables rumination and worry were calculated. This was done for the whole sample and for each country separately. Due to multiple testing (five correlations for the whole sample and for each country separately), Bonferroni corrections were applied, and $p < .01$ was considered as significant.

Furthermore, a mediation analysis using the Process Analysis of Hayes (2018) on the relation between self-compassion and fear of the future was conducted with the possible mediators worry and rumination. In a next step, gender and country were included as co-variates to examine their impact on the whole pattern of the relations. The analysis uses ordinary least squares regression, yielding unstandardized path coefficients for total, direct, and indirect effects. Bootstrapping with 5000 samples together with heteroscedasticity consistent standard errors (Davidson & MacKinnon, 1993) were employed. Effects were regarded as significant when zero was not included in the confidence interval.

Finally, a regression analysis (Method: Enter) for each country with the outcome variable "fear of the future" and the predictors "gender, rumination, worry, self-compassion, age, job, how religious they are, physical activity, mindfulness and loneliness" was conducted.

For the statistical analysis IBM SPSS 26 was used.

3. Results

Descriptive values of the religiosity (1 = not at all, 4 = very), the frequency of physical activity (how many times per week), answer to the question "Do you like to be alone?" (yes or no), the practice of

Table 3. Religiousness, physical activity before the pandemic (how many times per week), loneliness, mindfulness, depressive mood (desperate, non-interest) dependent on country					
	Religiousness Mean (SD) max_score = 4	Physical activity Mean (SD)	Do you like to be alone? % yes	Mindfulness % yes	Desperate % yes [1]	Non-interest % yes [2]
Germany	2.27 (0.94)	4.89 (1.93)	59.96%	51.82	39.40	31.48
Italy	2.12 (0.94)	4.03 (1.81)	69.63%	10.93	36.77	40.73
Spain	1.70 (0.89)	4.58 (1.93)	53.53%	37.70	57.38	55.11
Jordan	2.79 (0.62)	3.73 (1.92)	29.62%	33.67	57.79	66.08
Oman	2.83 (0.68)	4.70 (2.23)	28.34%	41.49	32.95	49.20
Saudi Arabia	2.88 (0.56)	3.94 (2.22)	31.34%	33.91	48.64	56.68

[1] Only the difference between the yes and no answers for the desperate % in Saudi Arabia was not significant (chi-square, all ps ≤ .002).

[2] Only the difference between the yes and no answers for the no-interest answer in % in Oman was not significant (chi-square, all ps ≤ .002).

mindfulness (yes or no), if they feel desperate (yes or no) and had no interest in the last weeks (yes or no) are presented in Table 3.

3.1. Differences in self-compassion, worry, rumination and fear of the future due to gender and country

3.1.1. Self-compassion
The univariate analysis of variance demonstrated a significant effect of country, $F(5, 2742) = 20.86$, $p < .001$, $\eta_p^2 = .037$, and gender, $F(1, 2742) = 14.44$, $p < .001$, $\eta_p^2 = .005$ but no interaction between both factors, $F(5, 2742) = 1.13$, $p = .34$, $\eta_p^2 = .002$. Men ($M = 3.37$ $SD = 0.62$) showed a higher value in the total score of self-compassion than women ($M = 3.22$, $SD = 0.70$). Bonferroni corrected post-hoc tests showed that the participants from the three Arabic countries had a higher self-compassion total score than the ones from the European countries, see Figure 1.

Figure 1. Mean score (SD) of self-compassion dependent on country.

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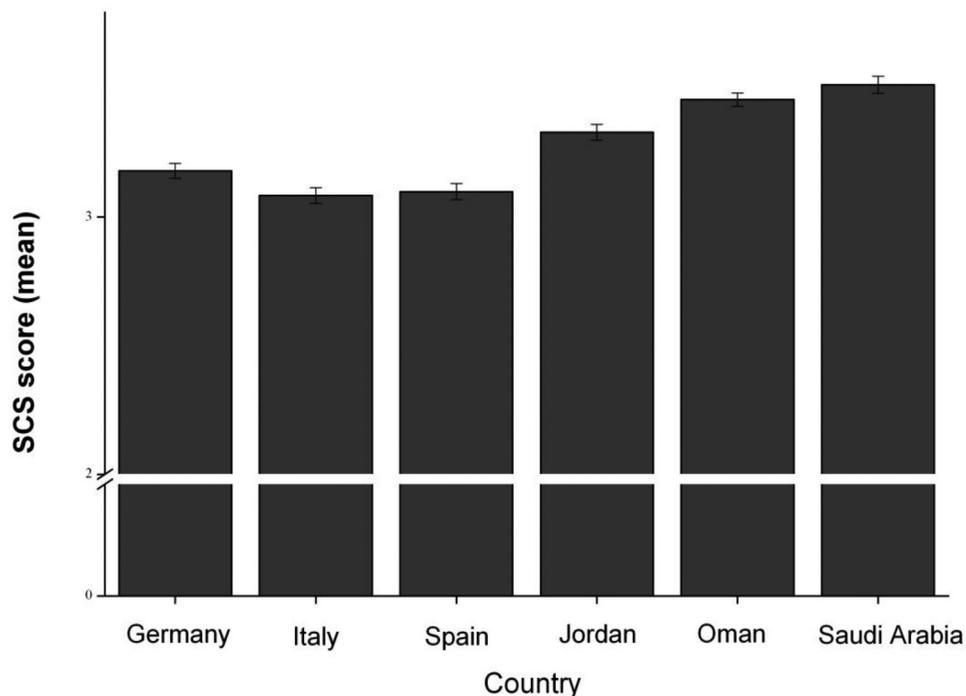
Table 4 presents the means and standard deviations of the self-compassion subscales for each country.

3.1.2. Rumination

The univariate analysis of variance showed a significant effect of country, $F(5, 2742) = 5.23$, $p < .001$ $\eta_p^2 = .009$ and gender, $F(1, 2742) = 28.61$, $p < .001$, $\eta_p^2 = .010$ but not an interaction between both factors, $F(5, 2742) = 0.57$, $p = .73$, $\eta_p^2 = .001$. Women ($M = 42.12$, $SD = 9.11$) had higher values in the rumination score than men ($M = 40.21$, $SD = 8.49$). Bonferroni corrected post-hoc tests revealed Italian and German participants showed lower values than Jordanians and Spanish participants, see Figure 2.

Table 4. Subscales of self-compassion for each country. Mean (standard deviation)						
Country	Self-kindness	Self-judgment	Common Humanity	Isolation	Mindfulness	Over-identification
Germany (n = 469)	3. 22 (0.79)	2.87 (0.81)	3.15 (0.83)	2.61 (0.95)	3.21 (0.76)	3.03 (0.82)
Italy (n = 497)	2.96 (0.91)	3.01 (0.91)	3.06 (0.91)	2.91 (1.05)	3.32 (0.84)	2.91 (1.02)
Spain (n = 550)	3.06 (0.95)	3.00 (0.95)	2.99 (0.84)	2.77 (1.02)	3.41 (0.88)	3.09 (0.98)
Jordan (n = 401)	3.38 (0.74)	2.71 (0.89)	3.44 (0.86)	2.80 (1.00)	3.33 (0.91)	2.65 (0.95)
Oman (n = 436)	3.43 (0.81)	2.54 (0.83)	3.65 (0.87)	2.72 (0.93)	3.46 (0.83)	2.53 (0.84)
Saudi Arabia (n = 404)	3.59 (0.82)	2.47 (0.98)	3.66 (0.93)	2.71 (1.00)	3.46 (0.90)	2.44 (1.00)

Figure 2. Sum score (SD) of rumination dependent on country.
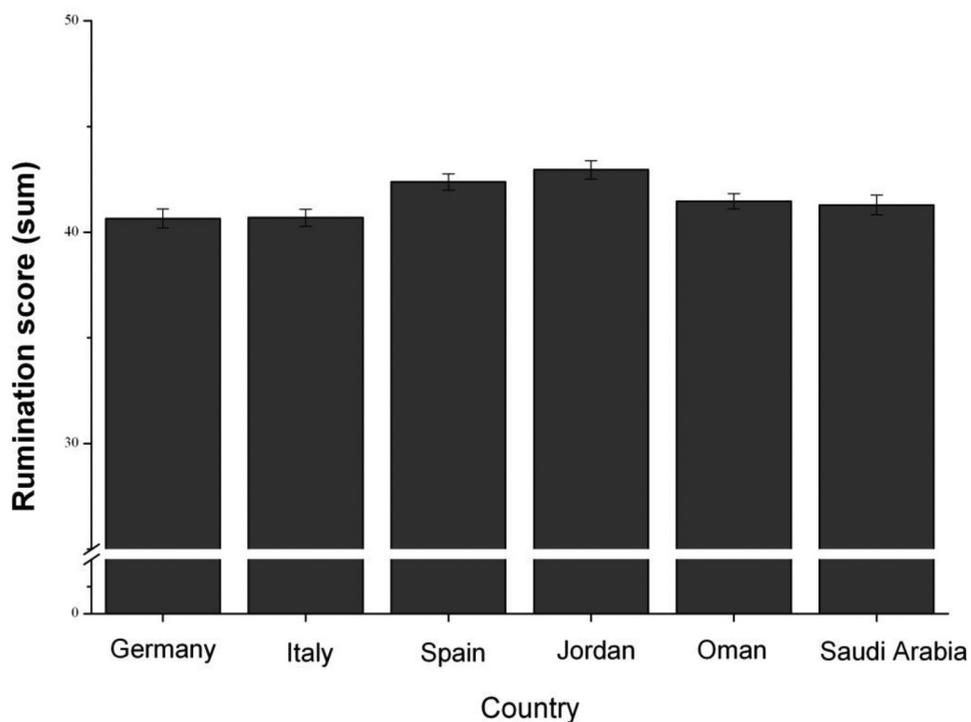
**Figure 3. Sum score (SD) of worry dependent on country.**
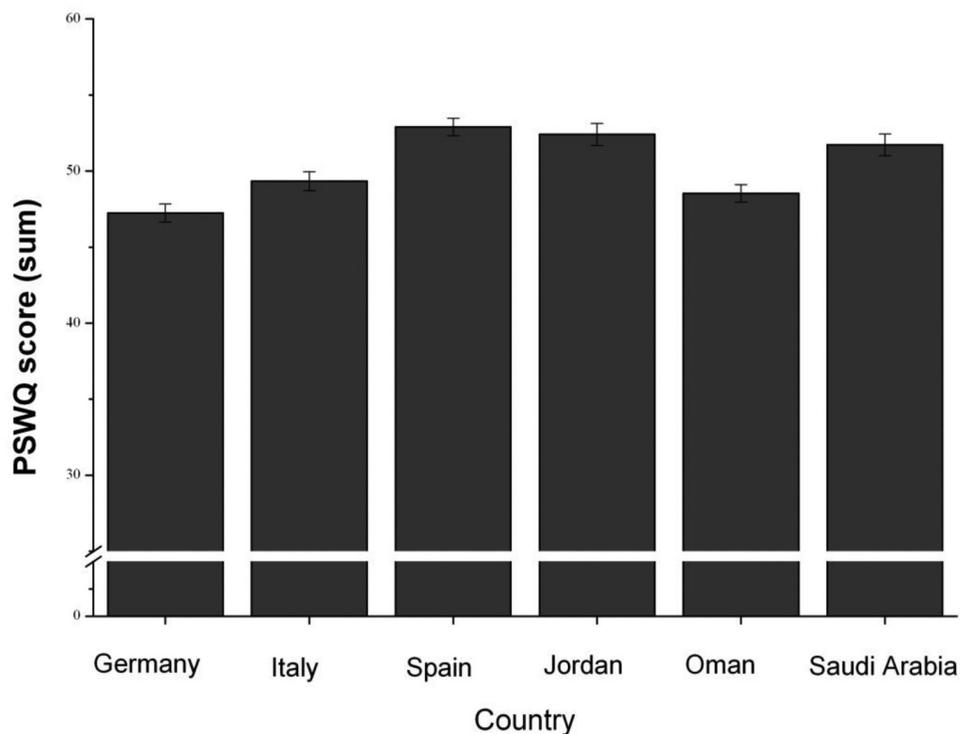
3.1.3. Worry

The univariate analysis of variance showed a significant effect of country, $F(5, 2742) = 11.60$, $p < .001$, $\eta_p^2 = .021$ and gender, $F(1, 2742) = 79.63$, $p < .001$, $\eta_p^2 = .028$ but not an interaction between both factors, $F(5, 2742) = 0.66$, $p = .652$, $\eta_p^2 = .001$. Women ($M = 51.89$, $SD = 13.67$) had higher values in the worry score than men ($M = 46.67$, $SD = 13.11$). Bonferroni corrected post-hoc tests showed that Italian and German participants showed lower values on the worry scale than Jordanians and Spanish participants, Germans also demonstrated lower values than Saudi Arabians. Also, Omanis demonstrated lower values than people from Spain, Jordan and Saudi Arabia, see Figure 3.

3.1.4. Fear of the future

The univariate analysis of variance showed a significant effect of country, $F(5, 2742) = 53.77$, $p < .001$, $\eta_p^2 = .089$ and gender, $F(1, 2742) = 57.22$, $p < .001$, $\eta_p^2 = .020$ but not an interaction between both factors, $F(5, 2742) = 0.70$, $p = .63$, $\eta_p^2 = .001$. Women ($M = 4.35$, $SD = 1.48$) had higher values in the worry score than men ($M = 3.89$, $SD = 1.52$). Bonferroni corrected post-hoc tests showed that participants from Germany showed lower values than participants from all other nations. Participants from Spain show higher values than all other nations. Jordanians had higher values than participants from Italy, Oman and Saudi Arabia, see Figure 4.

3.2. Correlation and mediation between self-compassion, rumination, worry and fear of the future

3.2.1. Correlation

The correlation analysis between all measures of interest demonstrated that self-compassion is correlated to rumination ($r = -.53$, $p < .001$), worry ($r = -.57$, $p < .001$) and fear of the future ($r = -.28$, $p < .001$) in the total sample. This holds true if the correlations are calculated for each country separately (all $p < .001$), see Table 5. Furthermore, fear of the future is also correlated to

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Figure 4. Mean score (SD) of fear of the future dependent on country.
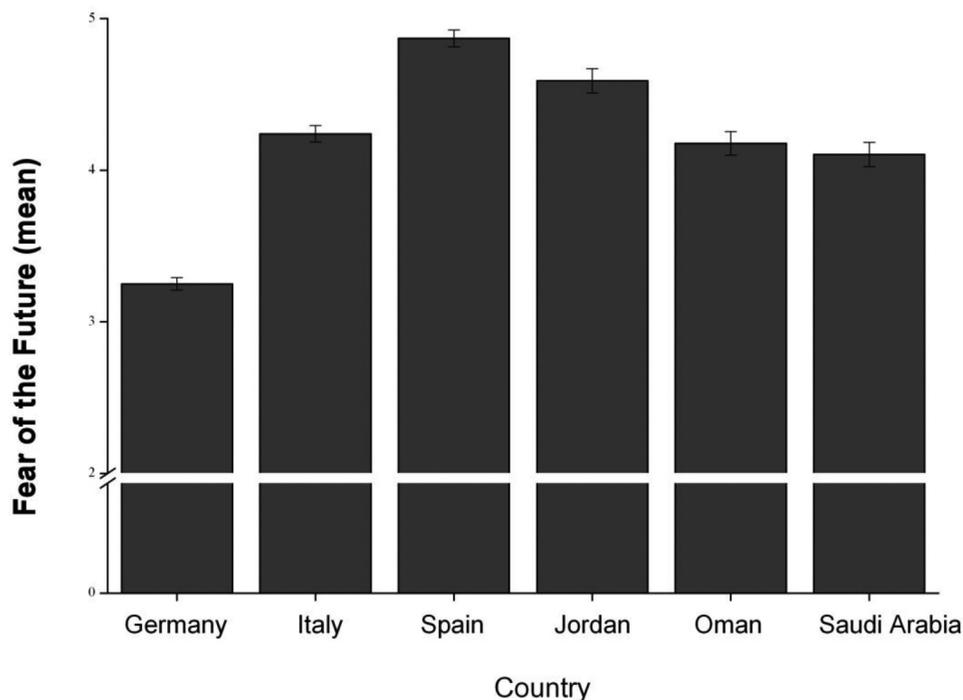
Table 5. Pearson-correlation between of self-compassion and fear of the future on the one side and worry and rumination on the other side for each country

	Self-Compassion Fear of the future	Fear of the future	Worry	Rumination
Germany	Self-Compassion Fear of the future	−.30	−.62 .37	−.58 .26
Italy	Self-Compassion Fear of the future	−.22	−.65 .35	−.59 .22
Spain	Self-Compassion Fear of the future	−.39	−.67 .50	−.67 .32
Jordan	Self-Compassion Fear of the future	−.33	−.57 .44	−.51 .41
Oman	Self-Compassion Fear of the future	−.24	−.46 .39	−.36 .30
Saudi Arabia	Self-Compassion Fear of the future	−.33	−.54 .33	−.50 .26

rumination ($r = .30$, $p < .001$) and worry ($r = .41$, $p < .001$) for the whole sample. Again, this holds true if the correlations are calculated for each country separately (all $p < .001$), see Table 5.

3.2.2. Mediation model

A mediation analysis was performed to analyze whether self-compassion predicts fear of the future and whether the direct path would be mediated by the perceived rumination and worry. A direct effect of self-compassion on fear of the future was observed, $\beta = -0.137$, $p = .0046$. Also, self-compassion predicted worry significantly, $\beta = -11.470$, $p < .0001$ as well as rumination, $\beta = -7.022$, $p < .0001$. Worry also predicted fear of the future, $\beta = 0.040$, $p < .0001$, whereas rumination does not predict fear of the future, $\beta = 0.003$, $p = .445$. The relationship between self-compassion and fear of the future is mediated by worry, indirect effect $ab = -0.4584$, 95%-CI [−0.528, −0.391], see Figure 5.

Figure 5. Mediation model.

* p ≤ .01; ** p ≤ .001. The values (β) in the figure express the direct relations between variables. Indirect effect found: self-compassion and fear of the future mediated by worry β = −.45 95%-CI [−.528, −.391]
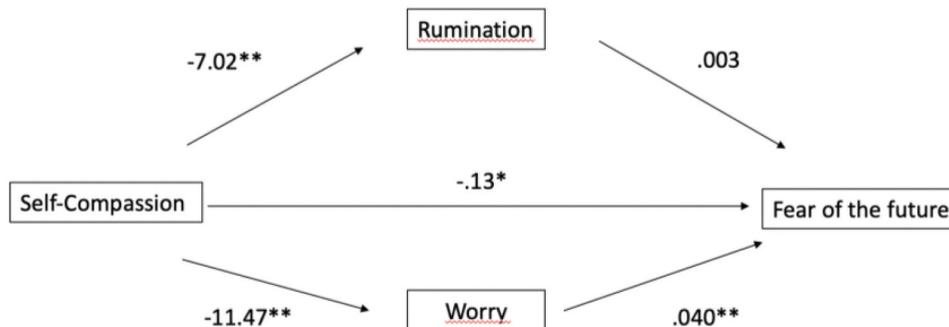
If gender and country were included in the analysis, the indirect effect of rumination on the relation of self-compassion and fear of the future is still significant. However, gender predicted fear of the future, β = −0.282, *p* < .0001, worry, β = −3.915, *p* < .0001 and rumination, β = −1.051, *p* = .0009. Also, country predicted fear of the future, β = 0.121, *p* < .0001, worry, β = 1.702, *p* < .0001 and rumination, β = −0.854, *p* = < .0001.

3.2.3. Predictors to the fear of the future for each country

Germany: The results of the regression analysis indicated that the predictors accounted for 17.2% of the variance (corrected R^2 = .147, $F(10, 325)$ = 6.77, *p* < .001). However, only worry (ß = .309, *p* < .001) and gender (ß = −.122, *p* = .019) significantly predicted the fear of the future in Germany.

Italy: The results of the regression analysis indicated that the predictors accounted for 18.8% of the variance (corrected R^2 = .161, $F(10, 304)$ = 7.016, *p* < .001). Only for predictors, age (ß = .209, *p* = .002), gender (ß = −.175, *p* = .001), worry (ß = .279, *p* < .001) and loneliness (ß = .109, *p* = .040) significantly predicted the fear of the future. The correlation between age and fear of the future was not significant. People, who don't like to live alone, show a higher fear of the future.

Spain: The results of the regression analysis indicated that the predictors accounted for 28.9% of the variance (corrected R^2 = .271, $F(10, 400)$ = 16.25, *p* < .001). However, only self-compassion (ß = −.138, *p* = .023), rumination (ß = −.182, *p* = .006), worry (ß = .480, *p* < .001), gender (ß = −.127, *p* = .004) and loneliness (ß = .096, *p* = .033) significantly predicted the fear of the future. People who don't like to live alone show a higher fear of the future.

Jordan: The results of the regression analysis indicated that the predictors accounted for 22.5% of the variance (corrected R^2 = .177), $F(10, 161)$ = 4.69, *p* < .001). Thus, type of job (ß = .158, *p* = .040) and grade of religiosity (ß = −.195, *p* = .010) significantly predicted the fear of the future. Less religious people had higher anxiety scores.

Oman: The results of the regression analysis indicated that the predictors accounted for 19.0% of the variance (corrected R^2 = .153, $F(10, 219)$ = 5.130, *p* < .001). However, only the attendance of mindfulness activity (ß = −.138, p = .028) and worry (ß = .256, *p* = .003) significantly predicted the fear of the future.

Saudi Arabia: The results of the regression analysis indicated that the predictors accounted for 17.4% of the variance (corrected R^2 = .132, $F(10, 196)$ = 4.127, *p* < .001). From these predictors only age (ß = −.202, *p* = .02) and self-compassion (ß = −.268, *p* = .002) significantly predicted the fear of the future. Younger people have higher anxiety.

4. Discussion

Regarding our first main research hypothesis our results demonstrate the following picture: for rumination, worry, and fear of the future, women had higher values than men and showed lower values in self-compassion compared to men. Whereas the factor gender demonstrated a clear picture for the different dependent measurements, the factor "country" did not, which will be explained later. Regarding the second hypothesis our results demonstrated that the relation between self-compassion and fear of the future is only mediated by worry but not by rumination. If gender and country were integrated as a co-variate the results did not change. The regression-analyses demonstrated that gender predicted the fear of the future in all European countries and worry in four countries. Furthermore, age was a relevant factor in Spain, Oman and Saudi Arabia, self-compassion in Spain and Saudi Arabia.

4.1. Self-compassion, rumination, worry and fear of the future in females and males

The result that women have higher values in rumination and worry confirm the meta-analysis of Johnson and Whisman (2013) detecting small gender differences in rumination and the study of Robichaud et al. (2003) regarding worry. In line with former studies, the effect sizes were small. The results were complemented through the higher score for women in the fear of the future measurement. The self-compassion was higher for men, which is in line with the meta-analysis of Yarnell et al. (2015). They carved out a slightly higher self-compassion for men compared to women, which is more prominent in study samples with greater proportions of ethnic minorities and becomes less clear in older age. However, in our study no interaction between gender and country was visible. Thus, country specific differences, like for example, different religions, do not have a high impact on the higher values for men compared to women.

4.2. Self-compassion, rumination, worry and fear of the future in different countries

The results of the current study have demonstrated that there are differences concerning the four psychological measurements according to the respective country. Those differences depend on the respective measurement. Regarding self-compassion, participants from the Middle East have higher values than participants from Europe. This result is in line with the study of Jansen et al. (2020) and it adds to the study of Ghorbani et al. (2012) that in Iranian muslims self-compassion predicted a form of mental health that went beyond the presumed strengths of self-esteem. For rumination and worry, participants from Spain and Jordan have a higher amount of rumination and worry than participants from Germany and Italy, and Germans also demonstrate lower values than participants from Oman and Saudi Arabia. For the measurement of the fear of the future, the results point out that Germans have the lowest scores and people from Jordan and Spain the highest. These results give a hint, that the psychological feelings measured with the instruments here show different patterns between the countries. However, there is no general difference between European and Middle Eastern countries. Also, the economic situation of each country could be excluded as one factor, for example, the lower rate of worry and rumination in Germans in comparison to Omanis and Saudi Arabians could not be explained by a different economic situation as indicated by the gross domestic product (GDP), see Table 2. Although the different severity code of the crisis could not be taken as a reason for the different results in the fear of the future: Jordan has a much lower death rate due to the Pandemic compared to Spain, but participants of both countries show the highest anxiety rates.

4.3. The prediction of the fear of the future in different cultures and its relation to self-compassion

Regarding the results of all participants, the assumed relation between self-compassion and fear of the future could be confirmed as well as a mediating effect of worry. These results are in line with the study of Raes (2010) who carved out that for healthy students, rumination and worry mediate the relation between self-compassion and anxiety. Also in his study, the effect of worry was higher than the one for rumination. The effect did not change if gender was included as a co-variate, suggesting a more global effect. Furthermore, self-compassion is also related to rumination and worry, and this holds true for all countries. This gives a hint that in many different cultures (and there are no studies in Middle Eastern cultures until now) the pattern of relation in modulating the anxiety (in our case

examining self-compassion as predictor, and rumination and worry as mediators) can express general psychological mechanisms of mental health as the experienced anxiety degree.

The regression analyses demonstrated different predictors for the fear of the future in different cultures. Only the predictor gender differentiates systematically between the three European and the three Middle Eastern countries. In Europe, women have more fear of the future than men, whereas there is no such difference in the Middle Eastern countries. The reason for these results can only be speculated. One reason might be, that more women in Europe work and leave parental home even moving from one region to another and must autonomously provide for the economic management of their living conditions. For this reason, the women in Europe might feel more anxious about their future. Women in the Arab culture are less concerned about the future compared to men because, according to the prevailing social norms, women are not responsible for securing the family's future, as the responsibility rests with the men in all Arab cultures.

Regarding other psychological variables that predict fear of the future, age was one predictor in Oman and Saudi Arabia. Younger people show more anxiety; thus, it seems reasonable that they are more concerned about the future. The socioeconomic conditions might not contribute to the result because Oman and Saudi Arabia have a high gross domestic per capita (Table 2).

Even self-compassion might be a helpful basis of psychological interventions in reducing anxiety (Germer, 2009), our regression analysis demonstrated that when integrating other variables in the regression model, self-compassion was only a significant predictor in Spain and Saudi Arabia. This gives a hint, that the influence of self-compassion is culture dependent. The enhancing effect of self-compassion must be investigated in relation to other variables which play an important role in the respective country, as for example, the grade of religiosity in Jordan.

4.4. Limitations

Though the study has several strengths explained in detail, there are some limitations. The first one is the selection of the countries participating. It was the main goal to compare the behavior in different European with different Middle Eastern countries, especially because this is almost completely neglected until now. However, the choice of the countries is arbitrary. All countries differ from one another despite regional proximity through different variables and only some of them are mentioned here. Also, the coronavirus pandemic proceeds differently in each country, whereas the social distance arrangements are comparable (as presented in the supplementary material). Another limitation is the measurement of the fear of the future. This measurement demonstrated an accep-table or good reliability in five out of the six countries. The reliability in the German sample is questionable (but see Streiner, 2003) and should be ameliorated in further studies by adding some more questions. Furthermore, the nonprobability sampling is another limitation.

5. Conclusion and future research

This study shows that self-compassion and fear of the future are positively related, but that this relation is mediated by the factor worry. This mediating effect is comparable in European and Middle Eastern countries. Furthermore, it is shown that different factors predict the fear of the future. The factor gender as a predicting factor is only relevant in the European countries. However, the difference within the European countries regarding the prediction of the fear of the future is at least as high as the one across both regions.

In future research the relevance of self-compassion for the fear of the future in uncertain times should be investigated in more depth. Due to the Coronavirus Pandemic the uncertainty gets visible for most of the people. Even self-compassion seemed to be helpful, the relevant related factors for each culture and country must be figured out. In some countries, other factors seem to be more important to predict the fear of the future than self-compassion.

Author details
Petra Jansen[1]
Markus Siebertz[1]
Philipp Hofmann[1]
ORCID ID: http://orcid.org/0000-0001-6582-9707
Kashef Zayed[2]
Dalia Zayed[3]
Faisal Abdelfattah[4]
Laura M. Fernández-Méndez[5]
Chiara Meneghetti[6]
E-mail: chiara.meneghetti@unipd.it
ORCID ID: http://orcid.org/0000-0002-1838-7958
Daryl O'ConnorReviewing editor
[1] Faculty of Human Sciences, University of Regensburg, Regensburg, Germany.
[2] Department of Physical Education & Sports Sciences, Sultan Qaboos University, Muscat, Oman.
[3] Royal Health Awareness Society, University of Jordan, Amman, Jordan.
[4] Department of Psychology, College of Education, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
[5] Department of Psychology, Rey Juan Carlos University, Madrid, Spain.
[6] Department of General Psychology, University of Padova, Padova, Italy.

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