

Individuals' Inner Wellbeing during the COVID-19 Pandemic: A Quantitative Comparison of Social Connections and Close Relationships between the UK and India

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Abstract—Relationships form an integral part of our everyday wellbeing. In this study, the focus is on Inner Wellbeing which can be described as an individuals' thoughts and feelings about what they can do and be. Relationships can come in many forms and can be divided into Social Connections (thoughts and feelings about the social network people can establish and rely on), and Close Relationships (thoughts and feeling about the emotional support people can receive from significant others or their close, intimate circle). The purpose of this study is to compare the Social Connections and Close Relationship dimensions of Inner Wellbeing during the COVID-19 pandemic between the UK and India. As part of the study, 392 participants in the UK and 205 participants India completed an online questionnaire using the Inner Wellbeing scale. Factor analyses showed that the construct of Inner Wellbeing can be described as one factor for the UK sample whereas it can be described as two factors (one focusing on positive items and one focusing on negative items) for the Indian sample. Results showed that during COVID-19, Social Connections were significantly different in the UK compared to India, whereas there is no significant difference for Close Relationships. The implications on relationships and wellbeing are discussed in detail.

Keywords—Social networks, relationship maintenance, relationship satisfaction, inner wellbeing.

I. INTRODUCTION

RELATIONSHIPS are crucial for our health and wellbeing, especially in times of uncertainty and emotional instability such as during the COVID-19 pandemic and subsequent lockdown. This period was characterised by isolation, loneliness, and in-person interactions limited by physical distancing (often referred to as social distancing) which significantly impacted people's daily and social lives. More specifically, in our normal lives, people would rely on their social networks, connections and relationships to deal with challenging and uncertain situations. Considering the potential effects, the COVID-19 disruptions could have on people's wellbeing, it was important to examine how people's relationships were affected. In more detail, an important question is whether social connections and relationships differ between different countries during the COVID-19 pandemic at a time when relationships in general are needed to deal with the challenges brought by the pandemic and its restrictions. As each

country was affected by COVID-19 in a different way and additionally also dealt with the COVID-19 pandemic in a different way, the focus of this paper is to compare two countries one of which is in the Global North (i.e., the UK) and one is in the Global South (i.e., India). Furthermore, India is a family-centric society with a high population density and extreme social stratification [1], whereas the UK has become increasingly multicultural and British society has progressively become less class conscious. However, the class system in the UK continues to shape the people's sense of belonging [2]. Therefore, we aimed to investigate whether relationships in the UK and India differed during the lockdown period in each country. In this paper, relationships are specified as close relationships and social connections as derived from White et al.'s [3] inner wellbeing construct. Inner wellbeing is defined as an "individuals' thoughts and feelings about what they can do and be" [3, p.724].

Inner wellbeing as a construct was introduced by White [3], [4], who was interested in people's everyday evaluation of inner wellbeing within developing nations in the Global South (e.g., Zambia, India). Initially, there were seven distinct, but at the same time interrelated aspects of inner wellbeing: (1) Economic confidence, (2) agency/participation, (3) social connections, (4) close relationships, (5) physical/mental health, (6) competence/self-worth and (7) values/meaning. These seven factors were confirmed by confirmatory factor analysis results and provided a significantly better fit to the data than a 1-factor model [3], [4]. For the current study, the main focus is on social connections, which can be described as an individuals' thoughts and feelings about what they can do and be in establishing a social network they can rely on, and close relationships, which refers to an individuals' thoughts and feelings about what they can do and be in receiving emotional support from significant others. As the COVID-19 pandemic was only declared a pandemic in March 2020, there is not much research published yet on the effects of the pandemic on people's relationships. Research by Nitschke et al. [5] collected data from a representative Austrian sample during the lockdown period on individual's wellbeing. Results showed that individuals who had had contact with a greater number of people in the previous

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two weeks (i.e., had higher levels of social connections) reported lower levels of stress, worry, and fatigue indicating that social connections have a positive effect on one's wellbeing. This shows that social connections during these uncertain times can provide support for the many challenges people were faced with. This is also related to leisure activities that people now no longer could take part in due to the lockdown, and the need to work at home, which both further weakened their social connections [6]. In addition, as people were forced to spend more time at home, online presence and thereby online connections became more important in people's lives. Results from a longitudinal study during COVID-19 showed that online social connections were beneficial to individuals' wellbeing only for a limited time and during the most restrictive isolation periods [7]. This suggests that during this particular time online social connections substituted face-to-face interactions and thereby supported people during isolation. However, it should be noted that in the long run and especially when restrictions were milder, online connections did not foster individuals' wellbeing. In contrast, research by Brown & Greenfield [8] surveyed 2090 participants about their use of online communication tools and their wellbeing since lockdown. Their findings show that participants increased their use of online communication tools to stay connected with friends and close others as well as the workplace. Furthermore, this increase in online communication was related to higher levels of wellbeing. This suggests that when in-person interactions are not available, using online communication tools can have a positive outcome on people's wellbeing. This has been further established using qualitative research methods by Halliday et al. [9] who adopted a solicited diary method to understand how mental health was affected during England's first lockdown. Their findings indicate that loss of social connections influenced mental health negatively and participants highlighted the use of social networks for support to cope with the pandemic. In addition, Li et al. [10] explored the use of information and communication technology to address daily needs during the COVID-19 pandemic using a sample representing 23,547,688 older adults in the USA. Results showed that the majority (60.2%) increased information and communication technology use during the COVID-19 pandemic. However, most older adults (71.8%) did not report learning a new technology to go online and the odds of learning a new technology decreased with increasing age. This suggests that older people are also using online communication tools which could have an effect on supporting their social connections through online communication tools and their wellbeing.

Therefore, the current study aims to build on this previous research by recruiting data from the UK and India's general population and comparing the Social Connections and Close Relationship dimensions of Inner Wellbeing during the COVID-19 pandemic between the two countries. This led to the following four hypotheses: 1) There is a significant difference in the social connections dimension of inner wellbeing between UK and India during the COVID-19 pandemic; 2) There is a significant difference in the close relationships dimension of

inner wellbeing between UK and India during the COVID-19 pandemic; 3) Age is a significant predictor in explaining social connections and close relationships during the COVID-19 pandemic for both India and the UK; 4) Gender is a significant predictor in explaining social connections and close relationships during the COVID-19 pandemic for both India and the UK.

II. METHOD

A. Participants

In this study, two different samples of data were collected. For the first sample, individuals over the age of 18 years who lived in the UK during COVID-19 were recruited. In total, $N = 411$ participants started the survey, but data from $N = 392$ participants were used for the analysis because they fit the inclusion criteria and completed the survey. Of the 392 participants who took part in the study, $N = 297$ (75.8%) were female, and $N = 95$ (24.2%) were male. In terms of age, the majority of the sample ($N = 221$) (56.4%) was 18-25 years old, $N = 110$ participants (28.1%) were 26-40 years old, while $N = 61$ participants (15.6%) were over 41 years old. Regarding education, $N = 238$ (60.7%) participants were students.

For the second sample, individuals who identify as Indian, over the age of 18 years and who lived in India during COVID-19 were recruited. In total, $N = 409$ participants started the survey, but data from $N = 205$ participants were used for the analysis because they fit the inclusion criteria and completed the survey. Of the 205 participants who took part in the study, $N = 95$ (46.3%) were female, and $N = 110$ (53.7%) were male. In terms of age, the majority of the sample ($N = 119$) (58.0%) was 18-25 years old, $N = 71$ participants (34.6%) were 26-40 years old, while $N = 13$ participants (6.3%) were over 41 years old and $N = 2$ (1.0%) did not disclose their age. Regarding education, $N = 105$ (51.2%) participants were students.

Participants were recruited via social media on a voluntary basis. Data were collected from 11th March 2020 (the date COVID-19 was declared a pandemic by WHO) to 12th May 2021.

B. Materials

The material used in this study was an online questionnaire consisting of two sections – demographic questions and the IWB scale.

Inner wellbeing scale: Inner wellbeing was assessed using the Inner Wellbeing (IWB) Scale [3]. This scale consists of 28-items which are measured on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree), giving a minimum total score of 28 and a maximum total score of 140, with reverse-worded items (1.3, 1.4, 2.3, 2.4, 3.1, 3.4, 4.2, 4.3, 5.1, 5.2, 6.1, 6.3, 7.3) scored in the opposite direction so that higher scores reflect higher levels of inner wellbeing. The 28 items consist of (1) economic confidence, (2) agency/participation, (3) social connections, (4) close relationships, (5) physical/mental health, (6) self-worth, and (7) values/meaning scales, each sub-scale containing four items. The IWB scale is recently developed and has not yet been

widely used. Therefore, factor analysis was conducted to establish the factors of IWB.

UK Sample

Out of the 392 participants, there were missing data for nine participants for some items in the IWB scale. Factor analysis, using principal axis factoring based on eigenvalues larger than 1, was performed to determine whether the 28 items could be described using one factor. The Kaiser-Meyer-Olkin measure was .85, above the recommended value of .60 [11]; Bartlett's test of sphericity was significant ($\chi^2(378) = 3267.26, p < .001$). Results showed that IWB could be described as one factor, as indicated by the scree plot (Fig. 1). This one factor had an eigenvalue of 6.56 and accounted for 23.4% of the variance in the data. For the items, 27 items had a positive loading higher than .20 and one item had a negative loading (-.16). This one IWB factor showed very good internal consistency ($\alpha = .84, N = 383$). Therefore, results show that it is best to describe IWB as one factor for the UK sample.

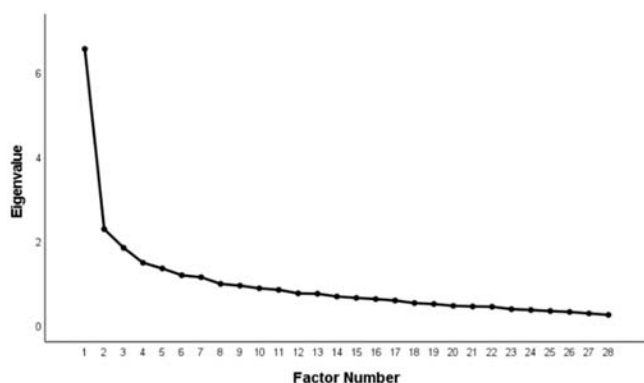


Fig. 1 Scree plot of factor analysis with principal axis factoring of IWB for the UK sample.

India Sample

Factor analysis was conducted to establish the factors of IWB. Factor analysis, using principal axis factoring based on eigenvalues larger than 1, was performed to determine whether the 28 items could be described using one factor. The Kaiser-Meyer-Olkin measure was .79, above the recommended value of .60 [11], Bartlett's test of sphericity was significant ($\chi^2(378) = 1621.16, p < .001$). Results showed that IWB could be described as two factors, as indicated by the scree plot (Fig. 2). Factor one had an eigenvalue of 5.32 and accounted for 19.0% of the variance in the data and consisted of the positively worded items of the IWB scale (items 1.1, 1.2, 2.1, 2.2, 3.2, 3.3, 4.1, 4.4, 5.3, 5.4, 6.2, 6.4, 7.1, 7.2, 7.4). The second factor had an eigenvalue of 3.48 and accounted for 12.4% of the variance in the data and consisted of the negatively worded items of the IWB scale (items 1.3, 1.4, 2.3, 2.4, 3.1, 3.4, 4.2, 4.3, 5.1, 5.2, 6.1, 6.3, 7.3). In total, these two factors accounted for 31.4% of the variance in the data. For the items, 27 items had a positive loading higher than .20 and one item had a positive loading (.165). Factor 1, the 'positive IWB' factor showed very good internal consistency ($\alpha = .83, N = 205$). Factor 2, the 'negative IWB' factor showed very good internal consistency ($\alpha = .77, N$

= 205). Therefore, results show that it is best to describe IWB as two factors for the Indian sample.

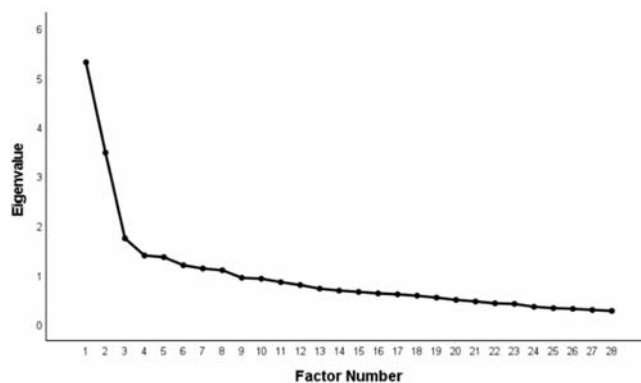


Fig. 2 Scree plot of factor analysis with principal axis factoring of IWB for the Indian sample.

C. Design

A between-participants design was employed. There was one independent variable (country), with two levels (UK and India). The dependent variable was the IWB score for Social Connections and Close Relationships.

D. Ethical Considerations and Procedure

The study was approved by the author's institutions (Brunel University London and Otermans Institute) (Ref: 16599-A-May/2020-25607-1 and Ref: 001-March2020). The survey was administered online using Qualtrics. Participants were shown the participant information sheet with general information about the study followed by the informed consent form. The survey started with the demographic questions followed by the IWB scale. At the end of the survey, participants were thanked for their participation and presented with the debrief statement. The study took approximately 10 minutes to complete.

E. Data Analysis Method

The data analysis was performed using IBM SPSS Statistics 26 software. An alpha level of .05 was used for all the statistical tests in this article. The effect size statistic reported is η^2 . Prior to analysis, IWB scores were examined for accuracy of data entry, missing values, outliers, and fit between their distributions and the assumptions of univariate and multivariate analysis. For the UK sample, there was missing data for nine participants for some items in the IWB scale, these were regarded as missing values. Each of the variables was normally distributed (all skewness $< \pm 1.23$ and all kurtosis $< \pm 3.29$) as indicated by Mayers [12] (i.e., for large samples, cut-off points for skewness and kurtosis is 3.29). No issues requiring attention were identified.

III. RESULTS AND DISCUSSION

For the UK sample, IWB was described as one factor having a total score ranging from 28 to 140. UK participants scored relatively high on IWB ($M = 93.45, SD = 14.27, N = 383$), suggesting high levels of inner wellbeing (i.e., high levels of their feelings and thoughts about what they can do and be) (Fig.

3). For the Indian sample, IWB was described as two factors, factor 1 (IWB_{positive}) ranging from 15 to 75 and factor 2 (IWB_{negative}) ranging from 13 to 65. Indian participants scored

relatively high on both IWB_{positive} ($M = 55.87, SD = 9.40, N = 205$) and IWB_{negative} ($M = 41.52, SD = 8.30, N = 205$) suggesting high levels of inner wellbeing (Fig. 3).

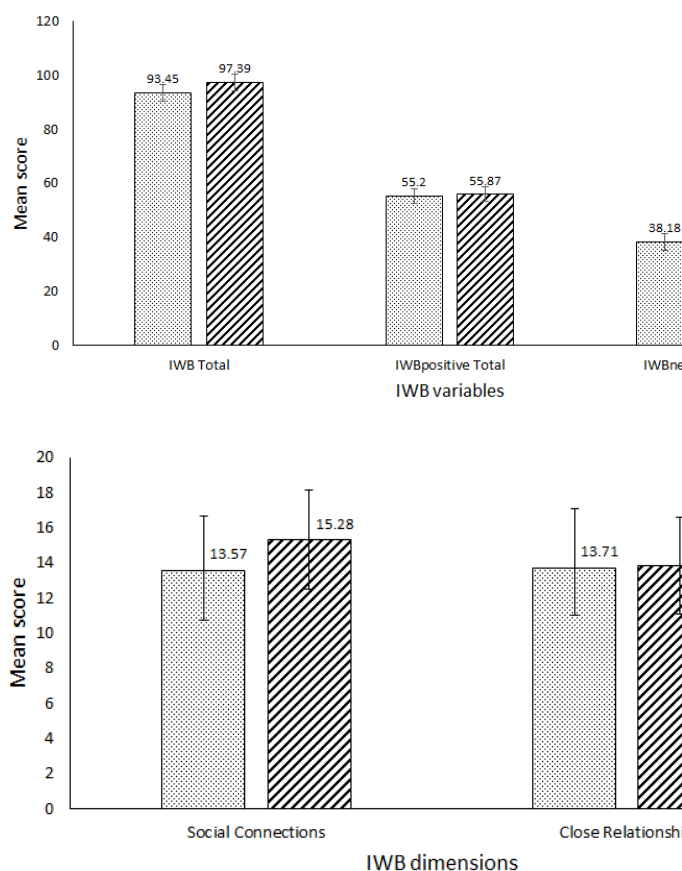


Fig. 3 Comparison of the mean score of IWB total, IWBpositive and IWBnegative between the UK and Indian sample

Fig 4 Comparison of the mean score of Social Connections and Close Relationships between the UK and Indian samples

UK vs. India

An independent-samples t-test was conducted to compare the social connections dimension of inner wellbeing between UK and India during the COVID-19 pandemic (Hypothesis 1). Results showed that social connections are significantly higher in India ($M = 15.28, SD = 2.82$) compared to the UK ($M = 13.57, SD = 3.11$), $t(595) = -6.60, p < .001$, two-tailed, confirming our hypothesis 1 (Fig. 4).

The magnitude of the differences in the means (mean difference = -1.71 , 95% CI $[-2.22, -1.20]$) was of medium effect (Cohen's $d = -.57$). This means that for people in India their thoughts and feelings about what they can do and be in terms of establishing a social network that they can rely on were stronger compared to the UK. This finding is in accordance with what other authors [5] identified in Austria showing the importance of social connections for individuals' wellbeing. In addition, the findings support Marinucci et al.'s [7] more specific argument of high social connections during the peak of the pandemic and the lockdown which coincides with the data collection of the present study.

To test whether the close relationships dimension of inner wellbeing was different between the UK and India during the COVID-19 pandemic, an independent-samples t-test was conducted (Hypothesis 2). Results showed that close relationships are higher in India ($M = 13.84, SD = 2.74$) compared to the UK ($M = 13.71, SD = 3.37$), but not statistically significant; $t(492.82) = -.52, p = .61$, two-tailed, rejecting our hypothesis 2 (Fig. 5). The magnitude of the differences in the means (mean difference = $-.13$, 95% CI $[-.64, -.37]$) was extremely small (Cohen's $d = -.04$). This suggests that people in the UK and India thought and felt similar about what they can do and be in terms of receiving emotional support from significant others. This finding does not explain Sharma & Subramanyam's [1] point of view that India as a family-centric society would be expected to score higher in the close relationships dimension compared to the UK.

To further look into the differences of social connections between the UK and India, follow-up tests were conducted to test for gender and age differences.

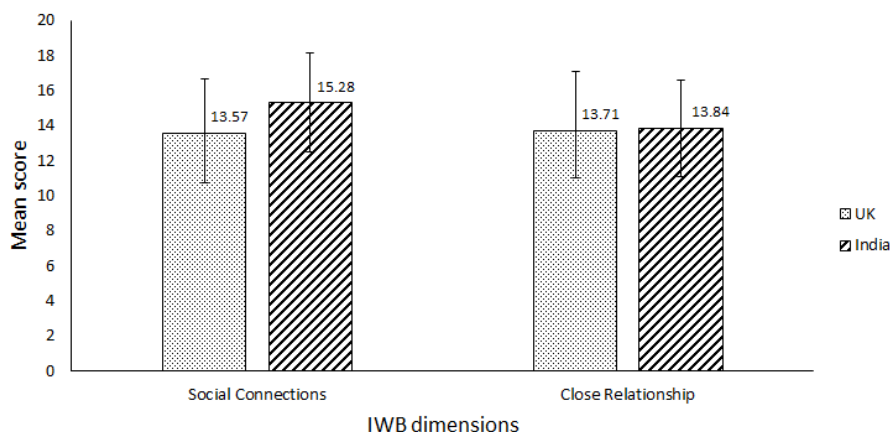


Fig. 5 Social Connections and Close Relationships between the UK and India during COVID-19; *** denotes $p < .001$

Age

An independent-samples t-test was conducted to compare the social connections of 18-25 years old participants between the UK and India during the COVID-19 pandemic (Hypothesis 3). Results showed that 18-25 years old in India had significantly higher social connections scores ($M = 15.21$, $SD = 2.81$, $N = 119$) compared to 18-25 years old in the UK ($M = 13.56$, $SD = 3.20$, $N = 221$), ($t(338) = -4.73$, $p < .001$, two-tailed) (Fig. 6). The magnitude of the differences in the means (mean difference = -1.65 , 95% CI $[-2.34, -.97]$) was of medium effect (Cohen's $d = -.54$). This means that for those 18-25 years old in India, their thoughts and feelings about establishing a social network that they can rely on were stronger compared to those 18-25 years old in the UK.

An independent-samples t-test was conducted to compare the social connections of 26-40 years old participants between the UK and India during the COVID-19 pandemic. Results showed that 26-40 years old in India had significantly higher social connections scores ($M = 15.32$, $SD = 2.85$, $N = 71$) compared to 26-40 years old in the UK ($M = 13.41$, $SD = 3.11$, $N = 110$), ($t(179) = -4.18$, $p < .001$, two-tailed) (Fig. 6). The magnitude of the differences in the means (mean difference = -1.92 , 95% CI $[-2.82, -1.01]$) was of medium effect (Cohen's $d = -.64$). This means that for 26-40 years old in India, their thoughts and feelings about establishing a social network that they can rely on were stronger compared to 26-40 years old in the UK.

An independent-samples t-test was conducted to compare the social connections of 41 years old and above participants between UK and India during the COVID-19 pandemic. Results showed that 41 years old and above in India had higher social connections scores ($M = 15.54$, $SD = 3.10$, $N = 13$) compared to 41 years old and above in the UK ($M = 13.90$, $SD = 2.77$, $N = 61$), ($t(72) = -1.89$, $p = .062$, two-tailed), but this was not significant (Fig. 6). The magnitude of the differences in the means (mean difference = -1.64 , 95% CI $[-3.61, .33]$) was of medium effect (Cohen's $d = -.58$). This means that for 41 years old and above in India, their thoughts and feelings about establishing a social network that they can rely on were stronger compared to 41 years old and above in the UK, but not significant.

As the results above showed that there was no significant

difference in close relationships between UK and India, it was expected that age would not be significant. Results showed that there was no significant difference in close relationships between India and UK for any of the age groups (18-25 years old, $p = .33$; 26-40 years old, $p = .84$; and 41 years and above, $p = .24$). To sum up, these results show that hypothesis 3 is partially confirmed for social connections (for 18-25 years old, 26-40 years old, but not for individuals 41 years or above).

Gender

An independent-samples t-test was conducted to compare the social connections of female participants between UK and India during the COVID-19 pandemic (hypothesis 4). Results showed that females in India had significantly higher social connections scores ($M = 15.29$, $SD = 2.72$) compared to females in the UK ($M = 13.76$, $SD = 3.09$), ($t(390) = -4.32$, $p < .001$, two-tailed) (Fig. 7). The magnitude of the differences in the means (mean difference = -1.53 , 95% CI $[-2.23, -.83]$) was of medium effect (Cohen's $d = -.51$). This means that for females in India, their thoughts and feelings about establishing a social network that they can rely on were stronger compared to females in the UK.

An independent-samples t-test was conducted to compare the social connections of male participants between the UK and India during the COVID-19 pandemic. Results showed that males in India had significantly higher social connections scores ($M = 15.27$, $SD = 2.91$) compared to males in the UK ($M = 129.96$, $SD = 3.11$), ($t(203) = -5.50$, $p < .001$, two-tailed) (Fig. 7). The magnitude of the differences in the means (mean difference = -2.32 , 95% CI $[-3.14, -.1.49]$) was large (Cohen's $d = -.77$). This means that for males in India their thoughts and feelings about establishing a social network that they can rely on were stronger compared to males in the UK.

As the results in Fig. 5 showed that there was no significant difference in close relationships between the UK and India, it was expected that gender would not be significant. Results showed that there was no significant difference in close relationships between India and the UK for the two genders (females, $p = .90$; males, $p = .25$). To sum up, these results show that hypothesis 4 is partially confirmed for social connections, but not for close relationships.

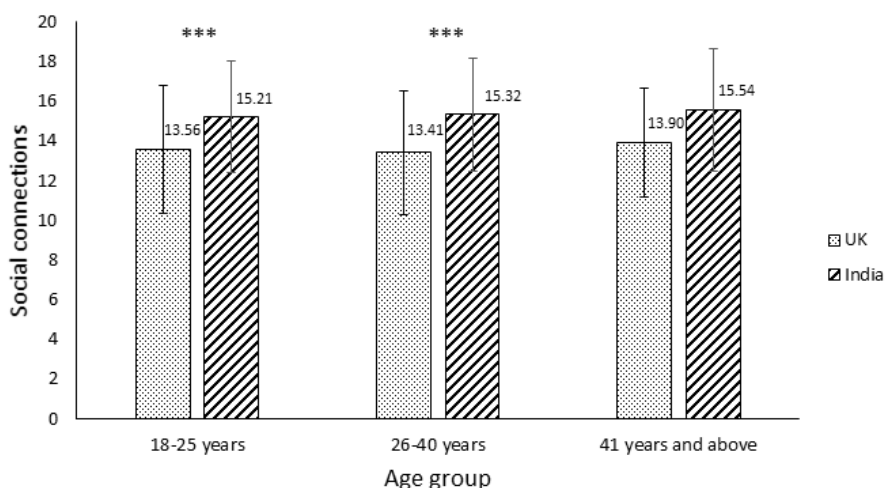


Fig. 6 Age differences for Social Connections between the UK and India during COVID-19; *** denotes $p < .001$

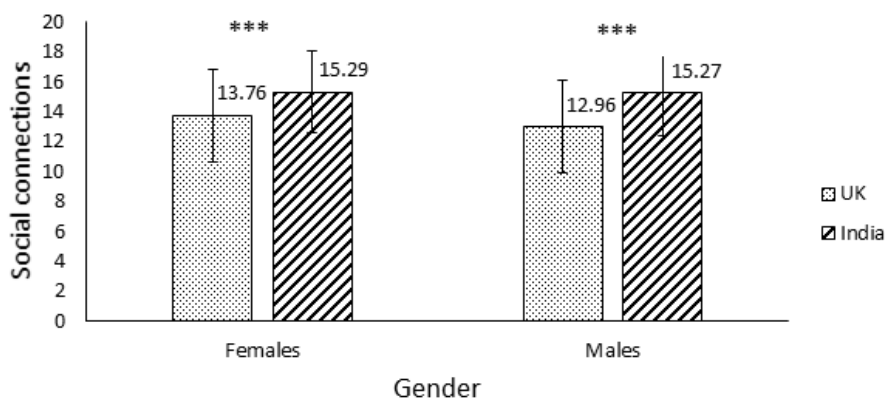


Fig. 7 Gender differences for Social Connections between the UK and India during COVID-19; *** denotes $p < .001$

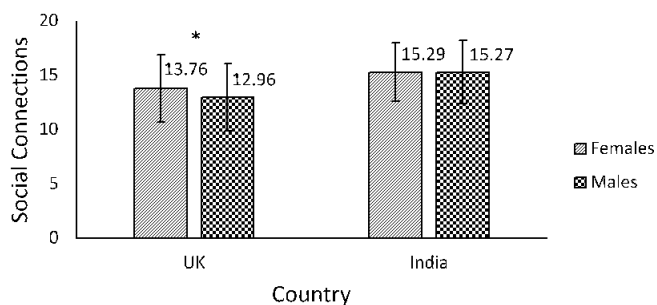


Fig. 8 Gender comparison on social connections between UK and India; * denotes $p < .05$

Within Each Country: UK and India

Gender

To test whether there are gender differences in social connections for the UK and India, independent-samples t-tests were conducted. Results showed that there is a significant gender difference for the UK sample but not for the Indian sample. In the UK, females had significantly higher social connections scores ($M = 13.76, SD = 3.09, N = 297$) compared to males ($M = 12.96, SD = 3.11, N = 95$), $t(390) = -2.21, p = .028$, two-tailed (Fig. 8). The magnitude of the differences in the means (mean difference = $-.81, 95\% CI [-1.52, -.09]$) was

small (Cohen's $d = .26$). This means that in the UK, females' thoughts and feelings about establishing a social network that they can rely on during COVID-19 were stronger compared to males. For the Indian sample, results showed that the social connections scores were very similar for females ($M = 15.29, SD = 2.72, N = 95$) and males ($M = 15.27, SD = 2.91, N = 110$), $t(203) = -.06, p = .96$, two-tailed, Cohen's $d = -.008$ (Fig. 8).

To test whether there are gender differences in close relationships for the UK and India, independent-samples t-tests were conducted. Results showed that there is no significant gender difference for both the UK sample and the Indian sample. In the UK, females had higher close relationships scores ($M = 13.85, SD = 3.31, N = 297$) compared to males ($M = 13.28, SD = 3.53, N = 95$), but this difference was not significant $t(390) = -1.42, p = .16$, two-tailed, Cohen's $d = -.17$. For the Indian sample, results showed that the close relationships scores were very similar for females ($M = 13.89, SD = 2.64, N = 95$) and males ($M = 13.80, SD = 2.84, N = 110$), $t(203) = -.25, p = .81$, two-tailed, Cohen's $d = -.034$. This means that in females and males in both the UK and India thought and felt similar about receiving emotional support from significant others during COVID-19.

Our results suggest that in UK females had significantly higher social connections compared to males, and there were no

other gender effects in the UK and India. These findings are partially in line with [13], which did not find any gender effect for the psychological impact of COVID-19 on people and their wellbeing (as social connections and close relationship are dimensions of inner wellbeing).

Age

A one-way independent ANOVA was conducted to explore the impact of age on social connections. Participants were divided into three groups according to their age (Group 1: 18 to 25 years old; Group 2: 26 to 40 years; Group 3: 41 years and above). For both the UK and India, there was no statistically significant difference in the social connections scores for the three age groups; UK: $F(2, 389) = .50, p = .61, \eta^2 = .003$, India: $F(2, 200) = .10, p = .91, \eta^2 = .001$. This suggests that age has no effect on the people's thoughts and feelings about what they can do and be in terms of establishing a social network during COVID-19 in both the UK and India.

A one-way independent ANOVA was conducted to explore the impact of age on close relationships. Participants were divided into three groups according to their age (Group 1: 18 to 25 years old; Group 2: 26 to 40 years; Group 3: 41 years and above). For the UK, Levene's test indicated unequal variances, $F(2, 389) = 3.16, p = .044$, and therefore a Kruskal-Wallis test was conducted. Results showed that there was no statistically significant difference in the close relationship scores for the three age groups; $\chi^2(2) = 3.25, p = .20$. For India, there was no statistically significant difference in the close relationship scores for the three age groups: $F(2, 200) = .80, p = .45, \eta^2 = .008$. This suggests that age has no effect on the people's thoughts and feelings about what they can do and be in terms of receiving emotional support from significant others during COVID-19 in both India and the UK. However, these findings are of interest, as Li et al. [10] found that even older people increased their use of information and communication technology during the pandemic which does not explain the findings of this study. More specifically, the present study does not show any effects on social connections and close relationships in the older age category (41 years and above). In line with the present study, Prati & Mancini [13] did not find any age effects on the psychological impact on people's wellbeing during COVID-19.

TABLE I
 SOCIAL CONNECTIONS AND CLOSE RELATIONSHIPS SCORES SPLIT BY THE
 THREE AGE CATEGORIES IN UK AND INDIA DURING COVID-19

Age	Social Connections				Close Relationships			
	UK		India		UK		India	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
18 to 25	13.56	3.20	15.21	2.81	13.41	3.63	13.77	2.66
26 to 40	13.41	3.11	15.32	2.85	14.12	3.01	14.03	2.78
41 and above	13.90	2.77	15.54	3.10	14.08	2.90	13.00	3.29

IV. CONCLUSION

The purpose of this study was to compare the social connections and close relationship dimensions of inner wellbeing during the COVID-19 pandemic between the UK and

India. Our findings show that social connections are significantly higher in India compared to the UK whereas there is no significant difference for close relationships. In addition, our results highlight that there is a significant gender difference, with females having higher social connections scores, in the UK but not in the Indian sample. Future studies could explore these differences further, and in particular identify the role of social connections and close relationships in people's inner wellbeing, as well as the relationship between these two dimensions.

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