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Mental health, quality of life, wellbeing, loneliness and use of social media in a time of social distancing during the COVID-19 outbreak. A cross-country comparative study

Amy Østertun Geirdal^a, Mary Ruffolo^b, Janni Leung^c, Hilde Thygesen^{d,e}, Daicia Price^b, Tore Bonsaksen^{d,e,g} and Mariyana Schoultz^f

^aFaculty of Social Sciences, Department of Social Work, Child Welfare and Social Policy, OsloMet - Oslo Metropolitan University, Oslo, Norway; ^bSchool of Social Work, University of Michigan, Ann Arbor, MI, USA; ^cFaculty of Health and Behavioural Science, The University of Queensland, St Lucia, QLD, Australia; ^dFaculty of Health Sciences, Department of Occupational Therapy, Prosthetics and Orthotics, Oslo Metropolitan University, Oslo, Norway; ^eFaculty of Health Studies, VID Specialized University, Sandnes, Norway; ^fSchool of Health and Society, University of Salford, Manchester, UK; ^gDepartment of Health and Nursing Sciences, Faculty of Social and Health Sciences, Inland Norway University of Applied Sciences, Elverum, Norway

ABSTRACT

Background: The COVID-19 outbreak raised questions about how people experience their mental health, quality of life (QoL), wellbeing and loneliness in the context of social distancing, and the use of social media during this time

Aims: To examine the experience of mental health, QoL, wellbeing and loneliness and use of social media among people living in Norway, USA, UK and Australia.

Methods: A cross-country comparative survey of people living in Norway, USA, UK and Australia. Relevant statistical analyses were used to examine differences between the countries and to explore associations between demographic, mental health and psychosocial variables and use of social media.

Results: There were 3810 respondents from four countries, of which 50–74% showed a high level of emotional distress. The Norwegian population reported significantly better mental health, QoL and wellbeing and lower levels of loneliness compared to the other countries. High-frequent use of social media after the COVID-19 outbreak was associated with poorer mental- and psychosocial health.

Conclusions: The results suggest that the COVID-19 outbreak took a toll on people's experience of mental health, QoL, wellbeing and experienced loneliness, and high-frequent use of social media was associated with these factors.

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Introduction

When the full coronavirus outbreak was declared a pandemic in the beginning of March 2020, stringent recommendations, rules and laws were introduced in countries around the world, including across Europe, America and Australia. In Norway, these recommendations resulted in a lockdown of the country which were introduced March 12th, from March 17th in USA, 18 and 21 March, respectively in United Kingdom (UK) and Australia (see Table 1). The lockdown was to provide a quarantine for those infected with COVID-19 and minimize contact with someone affected with COVID-19. Social distancing became the main rule. People had to stay at home and have as little social contact outside their household as possible, unless for essential reasons, e.g. to make necessary purchases, such as food and medicines and daily exercise. People were also encouraged to work from home wherever possible and many workers were told to stay at home. For example, in Norway,

USA and UK nurseries, daycare centers, preschools, schools and universities were closed for face to face classes, and communication was replaced by online classes and working from home when possible. Furthermore, flights and travel were cancelled, people with underlying health conditions were advised to stay isolated, grandparents were urged not to meet their children and grandchildren due to the increased risk associated with age, and people were not allowed to visit their next of kin at nursing homes and hospitals. All cultural meeting places were closed, including theatres, cinemas, sports venues and religious places of worship. A majority of businesses were put on hold, employees were given part-time or full leave and the society, as we know it, was closed down. Overall, the recommendation was for keeping a social distance of 6 feet or 2 meters between people outside their household.

All actions were put in place to prevent the spread of the COVID-19 virus. The global goal was to identify and suppress the spread of the virus. The other goal of the social

CONTACT Amy Østertun Geirdal  amyoge@oslomet.no  Faculty of Social Sciences, Department of Social Work, Child Welfare and Social Policy, OsloMet - Oslo Metropolitan University, PO Box 4 St. Olavs Plass, Oslo 0130, Norway

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Table 1. Summary of social distancing policies in place across the four countries during the study period.

Country	Summary of policies	Comparative restrictive level
Norway	12 March: schools and universities closed; health and beauty services closed; social distancing rules in place; stay at home	Moderate
USA*	17 March to 4 April, extended to 30 April: stay at home order across states, earliest in California, Illinois, and Puerto Rico; gathering ban with most states restricted to 10 or more or all gatherings; school closures; bars, sit-down restaurants, and nonessential retail closed for most states	High
UK	18 March: schools closed 21 March: entertainment venues closed 24 March: full lock-down imposed; ban on public gatherings of more than two people (excluding members of the same household); close-down of all nonessential services; directions to stay at home other than for essential reasons	High
Australia*	21 March: social distancing rules imposed and state governments to start closing nonessential services; 29 March: national announcement of restrictions on public gatherings of more than two people (excluding members of the same household); directions to stay at home other than for essential reasons); school closures have not been ordered but various arrangements were imposed across states that brought the school holidays forward 15 May: public gathering rules for some states beginning to ease and restricted nonessential services are permitted	Moderate than low

*Variations existed by states.

distancing was to give time for the healthcare system and infrastructures to prepare and be able to accommodate the potentially high volume of ill people who may need hospitalization and intensive care. No one knew the consequences of the pandemic when the lockdown and social distance was introduced.

Research associated with the origin of COVID-19 and related promising medical treatments, beneficial drugs, development of vaccines, comparison of the disease development in different countries and guidelines/recommendations for action were quickly published. These initiatives and research findings provided critical tools to stop the spread of the COVID-19 pandemic. However, social isolation and imposed social distancing without the permission to meet or see family, friends and colleagues in person, may take a toll on people's experience of wellbeing in their daily life. It is evident that social support is a strong and consistent predictor of health outcomes, and it is an important buffer between stress and mental health (Lakey & Cronin, 2008; Lakey & Orehek, 2011; Reid et al., 2016; Smith et al., 2015).

Social support can be defined as structural or functional, which refers to size, density, reciprocity of one's social network versus the availability of certain types of aids including practical- and emotional support (Cohen & Wills, 1985; House et al., 1988; Lakey & Cronin, 2008; Lett et al., 2005). According to Lett et al. (2005) social isolation is associated with increased risk of premature mortality and chronic disease morbidity, even when behavioral factors, comorbidity and socio-economic status are taken into account (Ramsay et al., 2008).

There is an emerging literature that identifies social media as a means to develop community and sustain communication and social interactions virtually (Gruzd & Haythornthwaite, 2013). Data that include information about positive outcomes of engaging in social media shows that individuals having difficulty with verbal expression in social settings may find relief in expressing themselves through the use of posts on social media outlets (Buechel & Berger, 2018).

Social support and closeness may be important, especially during times of lasting stressful events, such as the COVID-19 pandemic. The COVID-19 situation with the imposed social distancing practices may cause experiences of high stress and poorer mental health outcomes. Results from a qualitative study including five focus groups 5–12 days post lockdown in

UK (Williams et al., 2020), and a review study including 4 original research papers in addition to 24 letters to editors/editorials or commentary related to mental health and COVID-19 (Rajkumar, 2020) indicate that this may be the case.

However, little is known about the mental health and quality of life (QoL) in the context of social distance and social isolation, identified as a secondary consequence of major concern (Kumar & Nayar, 2020). The main goal of this comparative study was to examine the mental health including QoL, wellbeing, loneliness and worry among the population in Norway, USA, UK and Australia in the context of COVID-19 and social distancing. We hypothesized that there would be differences in mental health, overall QoL, wellbeing and loneliness between the countries, and that higher frequency of social media use would be associated with poorer mental health, QoL and wellbeing and more loneliness.

Materials and methods

In April/May 2020 an invitation to participate in the study through a self-administered survey was distributed via different social media such as Facebook, Instagram and Twitter, in Norway, USA, UK and Australia. Data were collected for approximately three to four weeks period in each country. Each country had a landing site for the survey at the researcher's universities; OsloMet – Oslo Metropolitan University, Norway; University of Michigan, USA; University of Salford, UK; and the University of Queensland, Australia, respectively. The initiator of the project was AØG from OsloMet; all countries and universities had their own head of the project, with ethical considerations and approvals. The survey was translated from Norwegian to English by the researchers according to language and cultural contexts.

The rationale for conducting the study at the particular point in time (few weeks following the transitions into lockdown and sheltering-in-place) was to understand the experiences due to the sudden crisis of significance during an early stage of the crisis. The four countries were all western with different healthcare- and welfare systems, cultural considerations and socio- and political differences. Inclusion criteria was ≥ 18 years, understanding Norwegian or English and living in Norway, USA, UK or Australia.

Measures

Demographic variables included age, living together with a spouse/partner, children or other, place of residence, educational level and work situation.

The measures employed were selected because they are used and validated in different populations, translations, and countries with good psychometric properties, see description of the questionnaires below.

General health questionnaire 12 (GHQ-12) is widely used as a self-report measure of mental health (Goldberg et al., 1997, 2013; Hankins, 2008). A large number of studies in the general adult-, clinical-, work and student populations have provided support for its validity across samples and contexts (Aalto et al., 2012; Adlaf et al., 2001; Donath, 2001; Firth, 1986; Goodwin et al., 2013; Gorter et al., 2008; Malt, 1989; Nerdrum et al., 2006) and translated from English to several other language, among these Norwegian (Hystad & Johnsen, 2020; Malt et al., 1989). Six items of the GHQ-12 are phrased positively (e.g. “able to enjoy day-to-day activities”), and six negatively (e.g. “felt constantly under strain”). The person indicates the degree to which the item content has been experienced during the two preceding weeks, using four response categories (“less than usual” (0), “as usual” (1), “more than usual” (2) or “much more than usual” (3)), score range 0–36. Positively formulated items are recoded prior to analysis. Higher scores indicating poorer mental health (more psychological distress). Case-level scores (the person indicating “more than usual” or “much more than usual” on at least four of the 12 items) indicate a level of emotional distress where treatment may be needed (Goldberg et al., 1998). Cronbach’s alpha ranging between 0.88 and 0.92 in the current samples across the countries, and the Pearson correlation between the questions and total value showed a significance <0.05 , indicating the questionnaires validity in the total sample and across the four national samples.

Cantril’s self-anchoring ladder (CL) is a self-administered overall QoL questionnaire with one question; “How is your life”, asking the person to rate his or her present experience of life on a scale anchored by their own identified values (Cantril, 1965) and used when comparing satisfaction with life between groups and populations (Aasprang et al., 2015; GallupWorldPoll, 2017; Mazur et al., 2018; Ortiz-Ospina & Roser, 2017; Steptoe et al., 2015). The response alternatives are between 0 and 10 with 0 = worst possible QoL and 10 = best possible QoL (Cantril, 1965). A cut off score was chosen at 6 and above for good overall QoL (Cantril, 1965). The CL has been reported to have good validity and stability and reasonable reliability (Atkinsen, 1982; Geirdal et al., 2012; Jenkins et al., 2005; Levin & Currie, 2014).

Psychosocial wellbeing (PSW) assesses an individual’s psychological experience of wellbeing and consists of ten items. The measure includes five positive and five negative statements with item scores ranging between 1 (=highest wellbeing) and 5 (=lowest wellbeing) (Kaasa et al., 1988). Cronbach’s alpha was excellent, ranging from 0.89 to 0.90 across the country samples. The validity tests in the current questionnaire showed a significant level <0.05 across the

four cross-country samples when analyzing the correlation between the questions and total value, indicating the questionnaires validity in this total sample.

Factor analysis using a fixed one-factor solution for the total sample revealed that the first factor (eigenvalue = 5.38) accounted for 53.8% of the data variance. The eigenvalues for the next possible factor was below 1. Factor loadings, expressing the strength of relationship between each item and the latent factor, were between 0.59 and 0.85. When repeating the analysis for each country separately, similar results were found for all countries. Thus, there is good evidence to propose a one-factor solution to the PSW scale, as used in this study, and consistent with previous validation studies (Kaasa et al., 1988).

The loneliness scale (de Jong Gierveld et al., 2006) consists of six statements, all of which are rated from 0 (totally disagree) to 4 (totally agree). This scale measures two different aspects of loneliness, “emotional loneliness” and “social loneliness”. Previous factor-analyses have found the six statements to load on two different factors, and therefore they should be treated as constituting two different scales reflecting the two different aspects of loneliness (Bonsaksen et al., 2019; de Jong Gierveld et al., 2006). Using a one-factor solution to measure overall loneliness may also be appropriate, depending on the level of conceptual nuance required. Higher sum scores indicate higher overall loneliness. Cronbach’s alpha was good, ranging between 0.78 and 0.80. The validity tests were $p < 0.05$.

In addition, participants were asked if they were *worried* about (i) their own situation, (ii) their next of kin’s situation as well as (iii) the future. Each of the three items was rated on a 1–5 scale, with 1 = not at all worried to 5 = being overwhelmed.

Social media use was measured with one item developed for this project, indicating how often participants had used social media in general after the COVID-19 outbreak. The response options were monthly or less frequently; weekly; a few times per week; daily; or several times per day. Subsequently, this variable was recoded into a dichotomized variable to reflect daily or less frequent use versus several times daily.

Statistical analysis

Continuous variables were described with means (M) and standard deviations (SD), categorical data with counts and percentages within the countries. Demographic variables were examined with one-way analysis of variance (ANOVA), adjusted by the Bonferroni correction, and with Chi-square test for categorical variables.

Differences in mental health, overall QoL, wellbeing and loneliness between low-frequency and high-frequency social media users were examined with independent *t*-test. Proportions within categories of social media use were cross-tabulated with the GHQ and CL variables indicating a score below or above the established threshold for these measures. The chi-square test was used to determine whether the frequency of social media use was different

between persons with and without emotional distress. The internal consistency of GHQ, PSW and loneliness-scale were examined in each countries' sample using Cronbach's coefficient alpha (Bland & Altman, 1997), and validity tests were performed across the national samples when analyzing the item-total correlations for each scale. If a significance <0.05 the questionnaire were defined as valid. In addition, factor analysis using a fixed one-factor solution was performed according to the PSW questionnaire.

Results with a corresponding p -value lower than 0.05 were interpreted as statistically significant.

Ethics

All data in this cross-sectional and cross-country study were collected anonymously. Each country's ethical rules were followed. The study was thereby quality assured and approved by OsloMet (20/03676) and the regional committees for medical and health research ethics (REK) (132066) in Norway, reviewed by the University of Michigan Institutional Review Board for Health Sciences and Behavioral Sciences (IRB HSBS) and designated as exempt (HUM00180296)

USA, by University Health Research Ethics (HSR1920-080) in UK, and (HSR1920-080; 2020000956) in Australia. All respondents gave consent for their data to be used in the research when they participated in the study.

Results

Demographics

A total of 3810 individuals responded to the online survey (80% female). Among these, 771 were Norwegians, 1392 from USA, 1373 from UK and 273 Australians. The samples were representative according to the individual countries' population by age-distribution and educational level, as well as representing all states (USA), except for the oldest age group in all countries. Australia had an over-representation of young participants with postgraduate qualifications, as well. Apart for cohabiting, all demographic variables were significantly different between the countries (see Table 2). When it comes to social media use after the outbreak, Australia had significantly less sample who engaged in high-frequency social media use compared to the other countries (57% versus 79% Norway, 66% UK, 77% USA, $p < 0.001$).

Worry, mental health, overall quality of life, psychosocial wellbeing, and loneliness

Worry, mental health, overall QoL, PSW and loneliness revealed some differences between the genders in each country and between the countries (Table 3). The Norwegian sample reported consistently significantly better mental health, overall QoL and PSW, lower levels of loneliness and worries compared to the other countries' samples (Table 3).

Table 2. Sociodemographic characteristics of the total sample and of each of the four subsamples.

Characteristics	Total ($n = 3810$)		Norway ($n = 771$, 20.2%)		UK ($n = 1373$, 36.0%)		USA ($n = 1393$, 36.6%)		Australia ($n = 273$, 7.2%)		p Value
	n	%	n	%	n	%	n	%	n	%	
Age group											
18–29 years	705	18.5	188	24.4	201	14.6	241	17.4	75	27.5	<0.001
30–39 years	713	18.7	176	22.8	236	17.2	245	17.7	56	20.5	–
40–49 years	827	21.7	198	25.7	346	25.2	241	17.4	42	15.4	–
50–59 years	723	19.0	116	15.0	317	23.1	243	17.5	47	17.2	–
60–69 years	612	16.1	71	9.2	209	15.2	290	20.9	42	15.4	–
70–79 years	209	5.5	21	2.7	58	4.2	121	8.7	9	3.3	–
80+ years	15	0.4	1	0.1	6	0.4	6	0.4	2	0.7	–
Sex											
Male	718	18.8	143	18.5	198	14.4	324	23.3	53	19.4	<0.001
Female	3034	79.6	628	81.5	1159	84.4	1036	74.4	211	77.3	–
Other/not stated	57	1.5	0	0.0	16	1.2	32	2.3	9	3.3	–
Living area											
Rural/farming	464	12.2	63	8.2	76	5.5	138	9.9	187	68.5	<0.001
Small town	848	22.3	150	19.5	233	17.0	421	30.2	44	16.1	–
Medium sized city	1223	32.1	116	15.0	498	36.3	570	40.9	39	14.3	–
Large city	1275	33.5	442	57.3	566	41.2	264	19.0	3	1.1	–
Education level											
Elementary school	17	0.4	9	1.2	0.0	0.0	3	0.2	5	1.8	<0.001
High school	380	10.0	112	14.5	127	9.2	119	8.5	22	8.1	–
Assoc./techn. degree	592	15.5	26	3.4	331	24.1	175	12.6	60	22.1	–
Bachelor's degree	1262	33.1	272	35.3	462	33.6	469	33.7	59	21.7	–
Master's/PhD degree	1558	40.9	352	45.7	453	33.0	627	45.0	126	46.3	–
Cohabitation											
Yes	3079	80.8	610	79.1	1127	82.3	1115	80.2	227	83.5	0.19
No	724	19.0	161	20.9	243	17.7	275	19.8	45	16.5	–
Employment											
Yes, full-time	1890	49.6	480	62.3	656	47.8	644	46.3	110	40.3	<0.001
Yes, part-time	802	21.0	166	21.5	309	22.5	235	16.9	92	33.7	–
No	1117	29.3	125	16.2	408	29.7	513	36.9	71	26.0	–
Social media use											
Daily or less	1060	28.0	163	21.0	465	33.9	317	23.1	117	42.9	<0.001
Several times a day	2724	72.0	608	79.0	908	66.1	1055	76.9	156	57.1	–

Note. Assoc./techn. degree is associate/technical degree. Statistical tests are chi-square tests. Cohabitation refers to "living with someone else."

Table 3. Worry, mental health, quality of life, psychosocial wellbeing and loneliness in the total sample and of each of the four subsamples.

	Norway (N = 771)			USA (N = 1392)			UK (N = 1373)			Australia (N = 273)			p Value
	Female (n = 628)	Male (n = 143)	Total	Female (n = 1036)	Male (n = 324)	Total	Female (N = 1159)	Male (N = 198)	Total	Female	Male	Total	
Worry													
Not at all/slightly worried (N/%)													
For own situation	523/85	126/88	659/85	n/a	n/a	n/a	586/51	103/52	698/50	148/70	40/75	194/71	<0.001
For next of kin	325/52	94/38	414/54	-	-	-	436/38	76/38	519/38	121/57	30/57	157/58	<0.001
For future	452/72	110/77	457/80	-	-	-	381/33	73/37	459/33	113/54	28/53	143/52	<0.001
Much overwhelmed (N%)													
For own situation	95/15	17/12	112/15	-	-	-	573/49	95/48	675/49	63/30	13/25	79/29	<0.001
For next of kin	303/48	49/62	352/46	-	-	-	723/62	122/62	854/62	90/43	23/43	116/42	<0.001
For future	176/28	33/23	209/20	-	-	-	778/67	125/63	914/67	98/46	25/47	130/48	<0.001
Mean (SD)	13.7(6.5)**	12.2 (5.9)	13.4 (6.4)	16.3 (6.0)***	14.8 (6.3)	16.0 (6.0)	18.5 (7.6)***	18.6 (7.0)	18.3 (7.6)	16.1 (6.8)	15.1 (6.3)	16.0 (6.7)	<0.001
Case (N/%)	319/51	56/39	373/50	744/74	181/58	950/70	875/75	128/65	1015/74	135/64	29/55	172/63	<0.001
Mean (SD)	6.7 (1.9)	7.0 (2.0)	6.7 (1.9)	6.6 (2.1)	6.5 (2.4)	6.5 (2.2)	6.1 (2.3)	6.2 (2.4)	6.1 (2.1)	6.8 (2.2)	6.8 (2.0)	6.8 (2.2)	<0.001
Case (N/%)	171/27	31/22	202/26	304/29	98/30	415/30	125/37	66/33	498/36	52/25	12/19	66/24	<0.001
Mean (SD)	2.2 (0.7)	2.0 (0.8)	2.1 (0.8)	2.9 (0.4)**	2.8 (0.3)	2.9 (0.4)	2.8 (0.3)**	2.8 (0.4)	2.8 (0.3)	2.9 (0.3)*	2.8 (0.3)	2.8 (0.3)	<0.001
Emotional loneliness (mean/SD)	5.3 (2.6)	5.0 (2.9)	5.2 (2.7)	6.0 (2.4)	5.8 (2.8)	5.9 (2.5)	6.7 (2.7)	6.4 (2.7)	6.7 (2.7)	5.6 (2.5)	5.5 (2.8)	5.6 (2.6)	<0.001
Social loneliness (mean/SD)	2.6 (2.5)	2.5 (2.4)	2.6 (2.5)	4.1 (3.0)**	4.7 (3.1)	4.2 (3.0)	4.2 (3.0)***	5.0 (3.2)	4.4 (3.1)	3.8 (3.0)	3.6 (2.8)	3.8 (3.0)	<0.001
Overall loneliness (Mean/SD)	7.9 (4.4)	7.4 (4.6)	7.8 (4.4)	10.0 (4.5)	10.4(4.9)	10.2 (4.6)	10.9 (4.8)	11.4 (4.6)	11.0 (4.8)	9.4 (4.7)	9.1 (0.3)	9.4 (4.7)	<0.001

***<0.001; **<0.01; *<0.05. GHQ: General health questionnaire; CL: Cantrils ladder; PSW: psychosocial wellbeing.

Associations between social media use and mental health

Examining differences in mental health scores between high-frequency (several times daily) and low-frequency (daily or less frequent) social media users, individuals with high-frequency of use had poorer mental health ($M = 16.8, SD = 7.0$) (higher GHQ ratings) compared to individuals with low-frequency of use ($M = 15.1, SD = 6.8, p < 0.001$). The same patterns of poorer ratings among those with high-frequency social media use were found in overall QoL ($M = 6.3, SD = 2.2$ versus $M = 6.7, SD = 2.2, p < 0.001$), overall loneliness ($M = 10.1, SD = 4.8$ versus $M = 9.7, SD = 4.8, p < 0.001$) and wellbeing ($M = 2.8, SD = 0.5$ versus $M = 2.7, SD = 0.4, p < 0.01$). Among the participants using social media daily or less frequently, 24.2% were classified with emotional distress, and 24.4% were classified with poor overall QoL. Among those using social media several times per day the proportions classified with emotional distress (75.8%, $p < 0.001$) and poor overall QoL (75.6%, $p < 0.01$) were significantly higher.

Discussion

This study aimed to examine how individuals in Norway, USA, UK and Australia experience mental health, overall QoL, wellbeing and loneliness and use of social media in the context of COVID-19 and social distancing. The main findings were that there are significant differences between the four countries in all dimensions, and between genders in each country, as well. According to the survey, 50% of the Norwegian respondents, 70% of those from USA, 74% of those from the UK and 63% of those from Australia reported emotional distress during April and May 2020, implying that social distancing appears to be of great importance to wellbeing. In comparison, before the pandemic, around 20% of adults in all four countries experience mental illness within one year (FHI, 2018; MHFA England, 2020; NAMI: National Alliance on Mental Illness, 2020; Parliament_of_Australia, 2019; Statistics, 2020). Earlier research have documented that a much higher percentage of people are affected with emotional distress after sudden threatening incidents and catastrophic events (Raphael, 1986; Weisaeth, 1989). The findings from this study are in line with this and demonstrate a significant relationship between the experience of COVID-19 and social distancing and mental health.

Emotional distress above a case level, in this study measured with GHQ and a threshold of ≥ 4 , indicate that the person has reduced wellbeing and functional impairment equivalent with a mental disorder. It is clear from our findings that the pandemic has had an important impact on people's experienced mental health. However, for most of the participants, the level of emotional distress will not be defined as a disorder with long-term impacts, and in need for professional help to get better. Instead it will be viewed as a situational-based emotional distress which is most likely to be reduced when the situation is normalized. On the other hand, for many people, the situation will not return to what was known as normal before, because someone close to them has died, or they have lost their job/source of income. Social

distancing might be the norm for quite a long period of time, at least until vaccines will be available. Although the pandemic may last for a very long time, the notion of response shift may indicate that people's emotional response to the situation may change as they become more accustomed to it. So, as the pandemic gradually becomes the new normal, we can expect that people's acute reactions to it will fade away. However, implications for clinical social- and health practices are to have in mind to focus on people's mental health in meeting with the individual client or patient. Where necessary, relevant follow-up and treatment must be offered.

Subjective wellbeing and health are closely related. The link could become increasingly important in times of crisis and times like the present one with COVID-19. When participants were asked how they rated their present experience of life, when measured with CL, around 30% responses across all countries were equivalent to poor overall QoL. However, it appears that some participants, such as those from UK, showed the highest score on emotional distress, and also reported the highest levels of loneliness, poorest wellbeing and overall QoL.

The significant differences in mental health, overall QoL and PSW, emotional and social loneliness, as well as overall loneliness between the country samples raised some interesting discussion points. A possible explanation might be difference in the level of trust between the participants and their own political systems and government in the different countries. The trust respondents had in the process of how each country dealt with the rules of the lockdown, may account for the differences noted in the results. According to Liao and Fielding (2014) such mistrust can depend on formal and informal information and communication, doubt about (changing) health care recommendations and media's role in publishing misinterpretation and disbelief in science. The differences may also be due to cultural considerations, familial, relational or socio-political differences. For example, while the welfare system in Norway includes sickness benefits if infected, paid hospitalization through tax scheme if hospitalization is needed, paid leave when the employer needs to close down the company for a shorter or longer timeframe, and employment benefits if the company being shut down, other countries, such as the USA, does not have as robust government support system and participants may experience more challenges related to securing health care, insurance and unemployment benefits over time. While Australia has a more similar system to Norway, the UK falls in between Norway/Australia and the USA. These social-political differences might, as well, mirror a feeling of safety or insecurity, trust or lack of trust in the particular situation, and may be an explanation of the reported differences in psychosocial factors as shown.

The respondents in this study reported less worry about their own health in comparison to the worry about the next of kin. One possible explanation for this and for the differences in results between the participating countries is the uncertainty about what happens in the future including family, relationships, employment, insurance status, concerns about getting infected with COVID-19, requiring hospitalization, as well as the confusion around the medical guidelines provided by each

government. If the differences could be explained as a result of association between trust and mental health, it could be an assumption that the Norwegians, on a group level, are more influenced by trust than the respondents from USA, UK and Australia. The stringent levels of social distancing policies, as outlined in Table 1, may also be associated with poorer mental health and psychosocial health, and have an impact on the level of trust as well. However, more research is needed to examine the possible associations between demographic factors and those outlined above and mental health and psychosocial aspects due to the COVID-19 situation.

The proportion of participants with emotional distress measured by GHQ were higher among the high-frequent social media users (using social media several times daily) than those using social media less frequently. Looking at the other dimensions of mental health show that people with high frequent use of social media are more often inclined to have poorer mental health, QoL, and wellbeing, as well as experience more loneliness. The findings are in line with previous studies (Gao et al., 2020). Social media has been overloaded with information – false or true – about COVID-19 and people with worse mental health and poorer QoL may be inclined to perceive social media as contributing less to joy and amusement, and more to stress, concern and worry and loneliness. In the situation with COVID-19, high frequent use of social media seems to have a negative impact of mental- and psychosocial health.

Conversely, people with better mental health may seek and find more joy, distraction, recreation and relaxation in their use of social media, compared to people with worse mental health and poorer QoL. Alternatively, they find needed information in other channels than social media, and the use of social media is more for relaxation. In view of such a self-care motive, better mental health and QoL and wellbeing among low-frequent social media users appears logical. However, more research has to be done in the area of use of social media. Measures of social media use may include other items than the single items used in this paper, and measures with continuous response options may lead to a broader and perhaps more precise picture of the association between use of social media and mental health in a situation of insecurity.

The cross-sectional study provides a snapshot of how participants reflected on their mental health when completing the questionnaire. It captured a moment in time but prolonged disruption in peoples' lives may change the level of distress participants would report on the key mental health measures in this study. The number of older participants was relatively low for the total sample, which limited the conclusions that could be made related to mental health and social isolation at the start of the pandemic. This is concerning since social isolation was already defined as a global "loneliness epidemic" (Berg-Weger & Morley, 2020) and a key public health issue among older adults during the pre-pandemic time (Hebblethwaite et al., 2020; Holt-Lunstad, 2017). Future studies need to examine the issues for older adults in greater depth. In addition, it will be important to examine over time not just the experiences of older adults but also participants who

continue to work remotely as well as, the impact of the pandemic on the mental health and well-being of children, adolescents and young adults.

Study limitations

There are some limitations of this study that should be taken into consideration for the interpretation of our findings. First, our data was collected using a cross-sectional online survey, therefore, assumptions about causations should not be made. Second, our findings imply that social distancing policies are important to psychological distress, QoL, wellbeing and loneliness. However, there are many additional factors that may have occurred on the individual-level as well as the regional and country-level when COVID-19 had been unfolding. For example, the degree of disease outbreak and social distancing policies differed between states within the USA, which warrants more in-depth investigation. Third, our samples were recruited through advertisements released by the universities through social media. Findings may not be generalized onto populations who do not use social media or may not have been exposed to the advertisements due to low levels of use. Response to the general population targeted advertisement in Australia was low, resulting in a large proportion of participants recruited through followers of the university's social media and newsletters; consequently, we had an overrepresentation of younger participants with postgraduate degrees. This may have affected Australian findings because the sample may be less likely to have challenges associated with family responsibilities and may have been more likely to be employed in sectors that working from home was possible. How COVID-19 impact on populations across different sub-populations, such as in the elderly, or in people whose employment has been affected, warrants future research.

Conclusions

The results in this study suggest that the COVID-19 outbreak and social distancing took a high toll on people's mental health, QoL, wellbeing and experienced loneliness. They also confirmed our hypothesis that there will be differences in psychological impacts between the countries, and that a high-frequency of social media use was associated with poorer mental health, QoL and wellbeing and more loneliness.

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