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Patterns of Social Media Use across Age Groups during the COVID-19 Pandemic: A Study across Four Countries

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Abstract: The aim of this study was to examine patterns of social media use across age groups in four countries (Norway, USA, UK, and Australia) two years after the COVID-19 pandemic outbreak, and whether types of use and time spent using social media was related to health worries. A cross-sectional online survey was completed by 1578 adult participants. The data were analysed with one-way analyses of variance and a linear regression analysis. Younger people spent more time on and were more likely to be passive users of social media than older people. Motives for social media use, and perceived effects of using social media, varied by participants' age. Passive social media use and more time spent using social media were related to higher levels of health worries. Thus, an age perspective is relevant for understanding patterns of social media use, and different types of social media use appear to be differently related to health worries.

Keywords: age; COVID-19; cross-national study; health worries; motives; social media



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1. Introduction

Social media, broadly referring to interactive internet-based applications relying on user-generated content, facilitating the development of online social networks (Obar and Wildman 2015), have become a significant aspect of the modern-day digital communication culture. For an increasing number of people, social media (such as, e.g., Facebook, WhatsApp, and Twitter) are important sources of information, connection with friends and family, and entertainment. For example, in the early stage of the COVID-19 crisis, the proportion of people reporting the use of social media 'several times daily' increased substantially, while the proportion reporting the use of social media 'daily' decreased (Thygesen et al. 2021). On the other hand, social media use has also been related to increased stress (Bucher et al. 2013), anxiety (Keles et al. 2020; Vannucci et al. 2017), depression (Keles et al. 2020; Lin et al. 2016), and loneliness (Hunt et al. 2018; Seidler et al. 2022). However, such findings seem to hinge on the quantity and, in particular, the quality of the interactions taking place on the social network sites (Seabrook et al. 2016), and findings may vary between groups, for instance, between younger and older persons (Bonsaksen et al.

2021; Seidler et al. 2022). This many-faceted nature of social media use and its relations to mental health have also been found in several studies in the context of the coronavirus pandemic (Bendau et al. 2021; Gao et al. 2020; Hou et al. 2020; Schoultz et al. 2021; Thygesen et al. 2022).

Given the rapid uptake of new communication technologies among young people, social media have been reported to be more extensively used among people of a young age (Feng et al. 2019). The use of social media comprises several distinct, yet potentially interconnected, aspects. While researchers have frequently focused on examining how much time people spend on social media, a plethora of perspectives and measures related to social media are used (Petropoulos Petalas et al. 2021). However, relatively scarce attention has been given to investigating how people engage with social media, for what reasons they use social media, and with what perceived effects. Possible age differences related to the different aspects of social media use, including motivations and perceived effects, appear to be largely unexplored.

During the COVID-19 pandemic, many have turned to social media for information about the disease, its consequences, and possible means of prevention and treatment. For example, in a study of 1003 adults in the USA, 76% reported that they had relied on social media at least 'a little', and despite high levels of mistrust in the accuracy of health-related information on social media, 64% of the social media users were unlikely to check the information they had seen on the internet (Neely et al. 2021). Thus, social media has increased its influence on people's daily lives and may have contributed to shaping people's health choices during the pandemic. Given social media's increased reach, the individual's ability to critically assess the information content on social media is increasingly important. However, as the magnitude, speed, and diversity of information on social media are overwhelming, critical assessment is challenging. As a result, exposure to health-related (mis-)information on social media may serve to increase rather than decrease health worries (Schoultz et al. 2021). Whether different modes of relating to information on social media may impact levels of health worries remains to be examined.

In summary, types of social media use as well as motives for and perceived effects of social media are not well explored, and we have been unable to identify studies applying an age group perspective on these aspects of social media use. Moreover, most studies in the field have been concerned with the situation in one specific country. Thus, cross-national studies of the patterns of social media use fill a gap in the literature and may increase our understanding of social media's role in modern society—in general, and with particular emphasis on how they may contribute to shaping people's health-related worries. Such knowledge may be of value for healthcare and social care professionals as they work with people whose sources of information are increasingly based on digital and social media. The aim of this study was to investigate patterns of social media use during the COVID-19 pandemic in an age group perspective. Patterns of social media use included types of social media use, time spent on social media, motives for use, and perceived effects of use. In addition, we aimed to examine associations between types and extent of social media use and health worries.

2. Materials and Methods

2.1. Design

This study is based on data from a cross-sectional survey that was conducted online in four countries (Norway, United Kingdom [UK], USA, and Australia) during the COVID-19 pandemic. Several social media channels, including Facebook, Twitter, and LinkedIn, were used to spread information about this study, and social media postings included a direct link to the survey website. Authors from each of the respective countries were responsible for conducting the survey and collecting the data. The online survey was open for participation among the general public in the four countries between November 2021 and January 2022.

2.2. Sample

This study recruited 1649 participants. Seventy-one participants reported non-binary gender or preferred not to report gender. These participants were removed from the sample prior to the analysis, rendering a sample of 1578 participants for the analysis. Among the participants included in the analyses, 238 (15.1%) were Norwegian, 251 (15.9%) were British, 858 (54.4%) were US American, and 231 (14.6%) were Australian. The age group distribution showed 251 (15.9%) participants aged 18–29 years, 398 (25.3%) aged 30–39 years, 442 (28.0%) participants aged 40–49 years, 253 (16.0%) participants aged 50–59 years, 155 (9.8%) aged 60–69 years, and 79 (5.0%) aged 70 years or older. There were 1242 (78.7%) women, 1211 (76.7%) had higher education, and 1138 (72.1%) were employed.

2.3. Measures

2.3.1. Daily Social Media Use

The participants were asked how much time they had spent on social media on a typical day during the past month. Building on the work of [Ellison et al. \(2007\)](#), response options were less than 10 min, 10–30 min, 31–60 min, 1–2 h, 2–3 h, and more than 3 hours.

2.3.2. Types of Social Media Use

Active and passive social media use was measured with two questions made by the authors for this particular study. Active social media use was measured with the item “In general, to what extent do you use social media for posting or commenting?” Passive social media use was measured with the item “In general, to what extent do you use social media for browsing, scrolling through the newsfeed, and looking at others’ profiles?” Both items had four response options: not at all (1), to a little extent (2), to a moderate extent (3), to a great extent (4).

2.3.3. Motives for Social Media Use

The survey also asked the participants about seven motives for using social media. The question was adapted from [Teppers et al.’s \(2014\)](#) study, and was used in a study conducted earlier during the COVID-19 pandemic ([Thygesen et al. 2022](#)). The item was “Nowadays I use social media. . .” and had the following endings: “to feel involved with what’s going on with other people” (personal contact motive), “because it makes me feel less lonely” (decrease loneliness motive), “so I don’t get bored” (entertainment motive), “to keep in contact with my friends” (maintaining relationships motive), “because I dare say more” (social skills compensation motive), “to be a member of something” (social inclusion motive), and “to make new friends” (meeting people motive). For each motive, participants could respond never (1), seldom (2), sometimes (3), often (4), and very often (5).

2.3.4. Perceived Effects of Social Media Use

Another question was used to assess self-perceived effects of using social media: “When using social media nowadays, what do you feel they contribute to?” Support, communication, stress, information, being updated, concern for own or others’ health, engagement, and relaxation were listed as possible effects. For each perceived effect, the participants indicated if the use of social media had no contribution (1), contributed a little (2), contributed somewhat (3), or contributed much (4). The question was developed by the authors and also used in a survey conducted in the early stage of the COVID-19 pandemic ([Thygesen et al. 2021](#)).

2.3.5. Health Worries

The participants rated their level of worries about their own health by responding to one question, which was constructed by the authors. The item was “During the current phase of the COVID-19 pandemic, are you worried about your own health?” The response options were (1) not at all, (2) a bit, (3) pretty much, (4) very much, and (5) extremely. The question was also used in previous surveys conducted during the COVID-19 pandemic

(Bonsaksen et al. 2021; Price et al. 2021). Evidence of convergent/discriminant validity was obtained from bivariate correlations between higher health worry ratings and higher ratings on stress ($r = 0.33, p < 0.001$), fatigue ($r = 0.29, p < 0.001$), and psychological distress ($r = 0.28, p < 0.001$), and between higher health worry and lower ratings on quality of life ($r = -0.22, p < 0.001$).

2.3.6. Sociodemographic Characteristics

Sociodemographic variables included the country (Norway, UK, USA, Australia), age group (18–29, 30–39, 40–49, 50–59, 60–69, 70 and above), gender (male versus female), employment status (full-time or part-time employment versus not employed), and education level (higher [i.e., BSc degree or higher] versus lower level).

3. Data Analysis

Comparisons between the six age groups were made using analyses of variance (ANOVAs). ANOVAs were also used to assess between-country differences and any age by country interactions. Categorical variables were cross-tabulated, and their associations were tested with the Chi Square statistic. A linear multiple regression analysis was used to examine associations between the independent variables (age group, gender, employment, education level, active social media use, passive social media use, and daily time spent on social media) and health worry. The independent variables were entered in two blocks, the control variables (age group, gender, employment, and education level) in the first block, and active use, passive use, and daily time spent on social media in the second block. Effect sizes are reported as standardized beta weights β , R^2 was reported as a measure of explained outcome variance, and statistical significance was set at $p < 0.05$.

Multicollinearity was examined with the variance inflation factor (VIF) (Hocking 2013). All VIFs were between 1.01 and 1.29, indicating no problematic multicollinearity between the independent variables. While the Kolmogorov–Smirnov test was statistically significant ($p < 0.001$), indicating that the distribution of the dependent variables deviated from the normal distribution, this occurs frequently in large public health datasets and is usually considered as not compromising the validity of parametric testing (Lumley et al. 2002). Moreover, skewness was relatively minor (0.75, $SE = 0.06$), which was within the recommended interval (George and Mallery 2010), and the standardized residuals of the dependent variable (between -1.82 and 2.92) were within the recommended range (Field 2013).

4. Results

4.1. Sample Characteristics in Different Age Groups

The age distributions were significantly different between countries. Both Norway and the UK had larger proportions of the sample aged between 30 and 59 years, with smaller proportions among the younger (18–29 years) and older (60 years and above) age groups. While the USA had larger proportions in the younger age groups (18–49 years), Australia had larger proportions in the older age groups (50 years and above).

The gender distribution was not significantly different between the age groups, whereas the distribution of participants with employment and higher education levels differed significantly across age groups. There was a larger proportion of employed participants aged between 30 and 49 years, and a larger proportion of participants who were not employed among those aged 60 and above. Proportions of employed and not employed participants were fairly equal in the age groups 18–29 years and 50–59 years. There was a higher proportion of participants with lower education levels among those aged 18–29 years, and a higher proportion with higher education levels among participants aged 30–39 years. In the other age groups, the proportions were relatively similar. A detailed overview of the sample characteristics by age group is provided in Table 1.

Table 1. Sample characteristics by age group ($n = 1578$).

Characteristics	18–29 <i>n</i> (%)	30–39 <i>n</i> (%)	40–49 <i>n</i> (%)	50–59 <i>n</i> (%)	60–69 <i>n</i> (%)	70+ <i>n</i> (%)	<i>p</i>
<i>Country</i>							<0.001
Norway	32 (13.4)	56 (23.5)	50 (21.0)	59 (24.8)	30 (12.6)	11 (4.6)	
UK	32 (12.7)	55 (21.9)	75 (29.9)	67 (26.7)	20 (8.0)	2 (0.8)	
USA	167 (19.5)	274 (31.9)	291 (33.9)	73 (8.5)	35 (4.1)	18 (2.1)	
Australia	20 (8.7)	13 (5.6)	26 (11.3)	54 (23.4)	70 (30.3)	48 (20.8)	
<i>Gender</i>							0.14
Male	61 (18.2)	80 (23.8)	86 (25.6)	58 (17.3)	27 (8.0)	24 (7.1)	
Female	190 (15.3)	318 (25.6)	356 (28.7)	195 (15.7)	128 (10.3)	55 (4.4)	
<i>Employment</i>							<0.001
Yes (full-time or part-time)	172 (15.1)	331 (29.1)	361 (31.7)	194 (17.0)	72 (6.3)	8 (0.7)	
No	79 (18.0)	67 (15.2)	81 (18.4)	59 (13.4)	83 (18.9)	71 (16.1)	
<i>Education level</i>							<0.001
Higher education	171 (14.1)	341 (28.2)	348 (28.7)	197 (16.3)	107 (8.8)	47 (3.9)	
Lower education	80 (21.8)	57 (15.5)	94 (25.6)	56 (15.3)	48 (13.1)	32 (8.7)	

Note. *p*-values are from Chi Square tests of independence.

4.2. Active and Passive Social Media Use

Both active and passive social media use were different between age groups. Post hoc comparisons revealed that for active use, the only significant difference was between participants in the youngest and the oldest age groups. Participants aged 70 or above rated active social media use higher than those aged 18–29 years ($p = 0.03$). For passive social media use, ratings decreased linearly with age. Participants aged 18–29 years scored higher than participants in all other age groups (all $p \leq 0.001$). Participants aged 30–39 years scored higher than participants in all groups of a higher age ($p < 0.001$). Participants aged 40–49 years scored similar to those aged 50–59, and higher than those aged 60–69 years ($p = 0.002$) and 70 years and above ($p = 0.001$). Otherwise, no differences between age groups were statistically significant. A detailed overview of the social media use variables in different age groups is provided in Table 2.

Table 2. Types, extent, motives, and perceived effects of social media use across age groups ($n = 1578$).

Variables	18–29 <i>M</i> (<i>SD</i>)	30–39 <i>M</i> (<i>SD</i>)	40–49 <i>M</i> (<i>SD</i>)	50–59 <i>M</i> (<i>SD</i>)	60–69 <i>M</i> (<i>SD</i>)	70+ <i>M</i> (<i>SD</i>)	<i>p</i>
<i>Types of social media use</i>							
Active use	1.41 (0.69)	1.52 (0.79)	1.54 (0.75)	1.59 (0.81)	1.58 (0.78)	1.71 (0.77)	0.03
Passive use	2.87 (0.90)	2.56 (0.97)	2.23 (0.96)	2.09 (0.91)	1.90 (0.84)	1.77 (0.86)	<0.001
<i>Time use</i>							
Daily social media use	4.73 (1.34)	4.40 (1.28)	4.35 (1.38)	4.09 (1.36)	4.00 (1.43)	3.81 (1.42)	<0.001
<i>Motives for social media use</i>							
Personal contact	3.27 (1.05)	3.12 (1.11)	3.27 (1.04)	3.15 (1.14)	3.39 (1.07)	3.33 (1.17)	0.06
Decrease loneliness	2.70 (1.17)	2.33 (1.20)	2.38 (1.23)	2.29 (1.28)	2.37 (1.17)	2.23 (1.25)	0.001
Entertainment	3.88 (1.00)	3.41 (1.13)	3.04 (1.13)	2.81 (1.22)	2.68 (1.10)	2.49 (1.19)	<0.001
Maintaining relationships	3.61 (1.07)	3.34 (1.07)	3.46 (1.03)	3.36 (1.11)	3.58 (1.09)	3.46 (1.10)	0.01
Social skills compensation	1.84 (1.04)	1.76 (1.03)	1.88 (1.08)	1.94 (1.09)	2.06 (1.10)	2.09 (1.17)	0.02
Social inclusion	2.31 (1.14)	2.17 (1.11)	2.19 (1.16)	2.28 (1.18)	2.25 (1.15)	2.44 (1.24)	0.31
Meeting people	1.78 (0.97)	1.59 (0.90)	1.53 (0.83)	1.47 (0.75)	1.53 (0.85)	1.70 (0.81)	0.001
<i>Perceived effects of social media</i>							
Support	2.13 (0.86)	2.03 (0.91)	2.10 (0.91)	1.99 (0.95)	1.93 (0.85)	2.10 (0.93)	0.17
Communication	2.98 (0.96)	2.72 (0.96)	2.65 (0.89)	2.70 (0.88)	2.75 (0.89)	2.73 (0.93)	<0.001
Stress	2.58 (0.97)	2.48 (1.06)	2.41 (1.05)	2.19 (1.07)	1.99 (1.08)	1.62 (0.76)	<0.001
Information	2.89 (0.94)	2.70 (0.93)	2.74 (0.90)	2.85 (0.84)	2.79 (0.92)	2.97 (0.85)	<0.05
Be updated	3.03 (0.89)	2.82 (0.93)	2.76 (0.87)	2.79 (0.85)	2.78 (0.91)	2.94 (0.82)	<0.01
Concern	2.15 (0.95)	2.06 (0.94)	2.12 (0.94)	1.97 (0.87)	2.13 (0.92)	2.13 (1.04)	0.25
Engagement	2.40 (0.90)	2.35 (0.87)	2.32 (0.89)	2.39 (0.87)	2.36 (0.87)	2.52 (1.00)	0.55
Relaxation	2.25 (0.95)	2.03 (0.96)	2.02 (0.88)	2.32 (0.95)	2.36 (1.00)	2.52 (0.88)	<0.001

Note. *p*-values are from *F*-tests of mean overall differences between groups.

In assessing differences in passive social media use by countries, there was a statistically significant effect of country ($p = 0.002$). Pairwise comparisons showed that participants

in the USA had the highest ratings on passive social media use, and significantly higher compared to participants in the UK ($p = 0.02$) and Australia ($p < 0.001$). Ratings were higher among participants in Norway compared to Australia ($p = 0.01$), while all other differences were not statistically significant. The age by country interaction was not statistically significant, indicating that the association between a higher age and lower ratings on passive social media use was uniform across countries.

4.3. Daily Time Spent on Social Media

Daily time spent on social media declined linearly with age. Post hoc analyses revealed that participants in the youngest age group scored higher than participants in all other age groups (all $p < 0.05$). Participants aged 30–39 years scored similar to those aged 40–49 years, and higher than those aged 50 years and above (all $p < 0.05$). Participants aged 40–49 years scored similar to those aged between 50 and 69 years and scored higher than participants in the oldest age group ($p = 0.01$). No other differences between age groups were statistically significant.

In examining country differences in daily time spent using social media, there was a statistically significant effect of country ($p = 0.02$). Pairwise comparisons showed that participants in the USA had the highest ratings on daily time spent using social media, and significantly higher compared to participants in Norway ($p = 0.02$) and the UK ($p = 0.01$). All other differences were not statistically significant. The age by country interaction was not statistically significant, indicating that the association between a higher age and less time spent on social media was similar across countries.

4.4. Motives for Social Media Use

Overall, scores on the item measuring the *personal contact* motive were not different between participants in different age groups. Scores on the *decrease loneliness* motive differed between participants in different age groups, and post hoc analyses revealed that while participants in the youngest age group (18–29 years) scored similar to participants aged 60–69 years, they had higher scores than participants in all other age groups (all $p < 0.05$).

Scores on the *entertainment* motive were significantly different between age groups, and scores decreased with age. Post hoc analyses revealed that those aged 18–29 years scored higher than participants in all other age groups (all $p < 0.001$). Participants aged 30–39 years scored higher than participants in all higher age groups (all $p < 0.001$). Participants aged 40–49 years scored similar in comparison to participants aged 50–59 years, and higher than participants aged 60 and above ($p \leq 0.01$).

Scores on the *maintaining relationships* motive were significantly different across age groups, but without a linear trend. The post hoc comparisons revealed that participants in the youngest age group scored higher than those aged 30–39 years ($p = 0.02$).

Scores on the *social skills compensation* motive were also significantly different across age groups, but without a linear trend. The post hoc pairwise comparisons revealed higher scores among participants in the age group of 60–69 years compared with participants aged 30–39 years ($p < 0.05$).

No overall age difference was shown for the *social inclusion* motive, whereas an overall difference was found related to scores on the *meeting people* motive. Those aged 18–29 years had similar scores compared with participants aged 30–39 years and participants aged 70 years and above but scored higher than participants in all other age groups (all $p < 0.05$). Aside from the noted differences between age groups, no differences were statistically significant.

4.5. Perceived Effects of Social Media

With regards to the perceived effects of social media, no overall age difference was found on *support*. An overall difference was revealed for scores on communication, and post hoc analyses showed that participants aged 18–29 years scored higher than their counterparts aged 30–59 years (all $p < 0.01$).

An overall age difference was found on *stress* with decreasing levels of stress with a higher age. Pairwise comparisons revealed that participants in the youngest age group scored higher than participants aged 50 years and above (all $p < 0.001$). Similarly, those aged 30–39 years scored higher than participants aged 50 years and above (all $p < 0.001$). Participants aged 40–49 years scored higher than participants aged 60 years and above (both $p < 0.001$). While participants aged 50–59 scored similar to those aged 60–69, they scored higher than participants aged 70 years and above ($p < 0.001$).

While an overall age difference was found on *information*, the pairwise comparisons revealed no significant differences between age groups. An overall difference between age groups was also found for *be updated*, and post hoc analyses revealed that those aged 18–29 years scored higher compared to participants aged between 30 and 59 years (all $p < 0.05$).

No overall age differences were revealed for *concern* or *engagement*, while an overall difference was found related to *relaxation*. Post hoc analyses revealed similar scores between those aged 30–39 years and 40–49 years, while participants in both of these age groups had lower scores on relaxation compared to participants in all other age groups (all $p < 0.05$).

4.6. Social Media Variables Associated with Health Worries

Results from the linear regression analyses are displayed in Table 3. The sociodemographic control variables included in the first block accounted for 5.0% of the variance in health worry ratings. All associations were statistically significant. A higher age and having employment were associated with lower levels of health worry, while female gender and having higher education were related to higher levels of health worries.

Table 3. Linear regression analysis displaying adjusted associations with health worries.

Independent Variables	Model 1	Model 2
	β	β
Higher age	−0.14 ***	−0.09 **
Female gender	0.15 ***	0.13 ***
Higher education	0.08 **	0.08 **
Employment	−0.07 **	−0.06 *
Explained variance	5.0% ***	
Active social media use		0.02
Passive social media use		0.11 ***
Daily time spent on social media		0.11 ***
R² change		2.9% ***
Explained variance		7.9% ***

Note. Effect sizes are standardized beta weights. $n = 1578$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

With the inclusion of the social media variables in the second block, the regression model was significantly improved, accounting for an additional 2.9% of the outcome variance. Higher levels of passive social media use and more daily time spent on social media were found to be related to higher levels of health worries. Variations in the levels of active social media use did not significantly influence levels of health worries. The associations between the sociodemographic variables and health worries were stable and remained statistically significant after including the social media variables in Model 2.

5. Discussion

5.1. Summary of Main Results

Younger people spent more time on and were more likely to be passive users of social media than older people. For motives for social media use, a younger age was related to social media use for decreasing loneliness and for entertainment. The youngest and oldest groups were more likely to report using social media for maintaining relationships and meeting people, while the middle age groups were less likely to. The youngest age group

was more likely to perceive social-media-induced stress, while the oldest age group was most likely to perceive it to have relaxation effects. Passive social media users and those who spent more time on social media reported higher levels of health worries, along with those who were younger, were female, had higher education, and were not employed.

5.2. Patterns of Social Media Use in Different Age Groups

This study showed that the oldest participants rated active social media use higher than the youngest participants, while ratings on passive social media use decreased with age. Thus, it appears that older users of social media were more inclined to engage in an active way, such as by posting content or commenting on content posted by others, than young users. Conversely, young people were more inclined than older people to look at content without really engaging with it. Possibly, the age differences with regards to active and passive social media use may reflect a stronger tendency among older people to actively choose what to do with their time, and to commit to their choices. Conversely, younger people may be less committed and less actively engaged in their pursuits and may be more inclined to do things just to pass time.

This explanation, emphasizing shifting values across the lifespan and a shift towards being more committed to values among people of a higher age, is in line with a theory of gerotranscendence (Tornstam 1989; Wadensten and Carlsson 2003) as well as Erikson's (1982) theory of human development. Both theories suggest that people's values and preoccupations change over the life course, and that life satisfaction among older people arises from being able to live in harmony with one's own core values. As previous research has suggested, a main value and source of life satisfaction among older people is having good social relationships (Gabriel and Bowling 2004). Thus, this line of reasoning may also shed light on the motives for using social media among older people, as they were predominantly social motives, such as 'meeting people'. Participants in the youngest age group scored in the higher range on all motives for using social media. However, the pattern shown for the entertainment motive demonstrates that people are increasingly motivated to use social media for entertainment the younger they are. Thus, activity choices motivated by a drive to be entertained and to avoid boredom occur more frequently among those of a younger age, as would also be predicted by the noted theories (Erikson 1982; Tornstam 1989).

Alternatively, or in addition, older people who are generally less skilled than younger people in using computers, tablets, and smartphones may not have realized the opportunities for entertainment that are made possible by social media. Also, Hoffman and co-workers explored the impact of online trust in users and described how older generations are likely to form views and explore the evidence widely (Hoffmann et al. 2014). In contrast, younger people, often labelled 'digital natives', are more likely to rely more solely on and trust online user forums with high numbers of followers and branding. Therefore, it is possible that being a digital native aligns with a less critical and more passive stance towards social media content.

Daily time spent on social media declined linearly with age. Thus, not surprisingly, participants in the youngest age group scored higher than participants in all other age groups. The youngest participants also rated most social media motives at a high level. More time spent on social media among the youngest participants may therefore reflect their many and combined motives for using social media. Prensky also referred to the younger people of our generation as digital natives (Prensky 2001a, 2001b), and argued that they have used digital technology all their lives, hence being wired by its use. The older generations, by contrast, are often referred to as digital immigrants, and hence are people who had to develop digital technology use as a skill learnt. The patterns of use and its impact across age groups hence need to be considered within this context. Prior studies have also shown a pattern of high social media use among adolescents and young adults (Feng et al. 2019), indicating that the age difference in social media use is persistent

over time and does not reflect a response to the specific circumstances of the COVID-19 pandemic.

Between the age groups, there were differences in terms of how the participants perceived various effects from using social media. Those in the youngest age group rated effects like 'communication', 'be updated', and 'stress' at higher levels, whereas the oldest participants rated 'relaxation' highest. The most striking difference may be the one related to social media's effect on feelings—young people felt stressed by social media, while older people felt more relaxed. As we discuss 'perceived effects', we are not in a position to verify that these are actual effects of the participants' engagement with social media, nor that any such effects vary by age. Possibly, the age differences in perceived social media effects may simply reflect a lower level of mental health and well-being among the younger participants, and better mental health and more well-being among those of an older age. Such differences have been relatively consistent across studies during the COVID-19 pandemic (Finch et al. 2023; Kolakowsky-Hayner et al. 2021). Alternatively, if the attributions are correct (i.e., the experiences are in fact a result of the participants' engagement with social media), it is possible that feeling more stress among the younger participants is a result of spending more time on social media, and also of using social media in a passive way, e.g., by scrolling. As the stream of information on social media is endless, using social media for information and updates can lead to information overload and result in perceived stress, and even fatigue (Zhang et al. 2022).

5.3. Social Media Variables Related to Health Worries

Passive social media use and more time spent using social media were related to higher levels of health worries. Although the effect sizes were small, it is important to note that one type of social media use, but not the other, was related to health worries. The result indicates that relationships between social media use and health worries are multi-faceted, given that they concern quantities (time spent on social media) as well as qualities (active versus passive social media use). While time spent on social media is a quantitative measure of the amount of daily engagement with social media, the active–passive dimension concerns qualitative aspects of how one engages with it. While the theory behind the active–passive types of social media use has been empirically contested (Valkenburg et al. 2021; Valkenburg et al. 2022), our results mirror those obtained in a large study from Iceland, where passive social media use was found to be related to greater symptoms of anxiety and a depressed mood, even when controlling for time spent on social media (Thorisdottir et al. 2019). Possibly, the semi-engaged scrolling indicative of the passive form of social media use can make people respond with worry to various health-relevant content they come across. Conversely, those who use social media actively and for specific purposes, such as reaching out to people, may be less exposed to health-relevant content and may also be less worried if exposed.

The sociodemographic variables were related to health worries in a largely expected pattern, with higher levels of worry found among younger and female participants. However, while having higher education generally is associated with better physical and mental health (Bonsaksen et al. 2019; Schou-Bredal et al. 2021), this study showed that those who had higher education were more worried about their health than their counterparts with lower levels of education. It is possible that in the COVID-19 context, a higher level of health worries is an adaptive response, which enables people to make necessary precautions to stay safe and healthy.

5.4. Study Limitations

This study employed a cross-sectional design, and the results do not establish cause and effect relationships. We found that passive social media use and more time spent on social media was associated with health worries; however, we do not know if social media use would worsen health worries, or if people with higher levels of health worries would spend more time on social media. It could also be both ways; however, our data

cannot be used to answer this question. Spending more time on social media may increase health worries—previous qualitative studies have shown that information overload with misleading or polarized opinions has been a challenge in social media during the pandemic (Schoultz et al. 2021).

While this study yields new insights into the patterns of social media use in different age groups, the lack of information about the use of specific social media platforms is a limitation. Facebook was one of our main sources of participant recruitment, which may affect our results because people of different age groups may use social media platforms in different ways. Our sample may be biased towards including more persons who are users of Facebook, and indeed, all participants were required to use a computer tablet, or smartphone, to be able to access and respond to the survey. This aspect of the data collection strategy resulted in more participants in the younger age groups. Thus, this study cannot be generalized to the general population, given the sampling techniques and the skewed sample distributions on gender and education level. Also, the imbalance between participants in terms of origin (i.e., the four different countries) indicates that no attempts should be made to generalize to the general populations in the four specific countries.

We found that older age groups reported more active social media use, and younger age groups reported more passive social media use. We do not know if this age trend may be more apparent in people who use Facebook compared to people who use other platforms. Future research with resources to recruit from a wider range of both online and traditional platforms could provide information on the generalizability of our findings.

While the survey was cross-national, it was only undertaken in countries in the global north (i.e., rich, developed countries) and not in the global south (i.e., poorer, less developed countries). Given sharp differences in culture, technological advancement, and social media use between the global north and the global south, the results of this study may have limited applicability outside the global north.

Some of the measures used in this study, including the one assessing health worries, were self-developed by the research group and without known psychometric properties. Thus, we have limited knowledge about the validity and reliability of some of the employed instruments.

6. Conclusions

Social media use differed between people in different age groups, both in terms of time spent using social media, and the types of, motives for, and perceived effects of social media use. Young people spent more time on social media, used them more often in a passive way, and perceived more stress related to social media use, compared to older people. Therefore, the combined findings may raise concerns about young adults' social media use and its impact on their health worries, to the extent that healthcare and social care professionals should be able to address unproductive social media use in consultations with clients. However, one should consider social media use and its precursors and effects to be complex phenomena with complex interconnections. While this study has elaborated on certain aspects of social media use in an age group perspective, future studies need to focus on other areas, such as the nature of the interactions taking place on social media. Moreover, to address the limitations related to the four countries involved in this study, we recommend that further cross-national and cross-cultural surveys are undertaken in countries representing both the global north and the global south. Future research could also benefit from including controls for factors such as the nature of interactions taking place on social media platforms and recruiting participants from a wider range of online and traditional platforms to enhance the generalizability of the findings.

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