

Title: #StateOfMind: Family meal frequency moderates the association between time on social networking sites and well-being among UK young adults

Running Title: Family-meals moderates SNS & well-being relation

Keywords: social media use; social networking; well-being; family belonging; young adults

ABSTRACT

Family belonging may influence relationships between the amount of time spent on social networking sites (SNS) and well-being. We examined the SNS and well-being association among young adults and investigated whether different markers of family belonging moderated this association.

Methods

SNS, well-being and family data (n=2229) was collected from adults aged 16-21 years living with their parent(s) in the UK. Participants were classed as non-users (0 hours/weekday spent chatting or interacting with friends through social websites), moderate- (non-zero to 4 hours/weekday) or heavy-users (4+ hours/weekday). Multivariable linear regressions examined the SNS use and well-being associations; interaction terms tested whether these varied by family belonging (family meal frequency, strength of family support, and importance of family to personal identity).

Results

Well-being scores were lower for heavy-users of SNS compared to moderate-users ($p=0.044$), and for those sharing few or no family meals ($p<0.001$). The SNS use and well-being association was significantly moderated by family meal frequency ($p=0.009$). Among those reporting no family meals, well-being scores were lower for heavy-users *vs.* non-users (22.4 *vs.* 25.3). Well-being scores were similar across the SNS use categories among those having more family meals.

Conclusions

Among heavy-users of SNS, young adults having no family meals may be particularly vulnerable to the harms of being online. Our findings highlight the importance of minimizing the harms of heavy SNS use, including support for families to enable them to develop and

build young adults' resilience to the stresses and anxieties that potentially accompany online social networking.

Keywords: social media use; social networking sites; well-being; family belonging

Introduction

Using social networking sites (SNS) such as Facebook, Twitter, and Instagram – a particular subset of social media use (SMU) – is nowadays an integral part of young adults’ daily lives. According to the stimulation hypothesis, SNS use can positively influence well-being through enhancing existing friendships.¹ However, UK evidence suggests potential harms of SMU, including SNS use, on mental health and well-being.²⁻⁴ Recent systematic reviews and meta-analyses of quantitative studies – albeit mainly cross-sectional investigations – provide evidence that this is a global phenomenon.⁵⁻⁷

These associations have a number of plausible explanations. Firstly, in contrast to stimulation, the displacement hypothesis suggests that heavy users are more vulnerable to lower levels of well-being due to time spent online replacing time on other activities, including face-to-face interaction with friends.¹ Secondly, social media users may experience negative upward social comparison.⁸ In the UK, for example, 57% of 16-25 year-olds reported that social media creates an “overwhelming pressure” to succeed; while 46% reported that comparing their lives to their friends on social media made them feel “inadequate”.⁹ This is also a global phenomenon.¹⁰

Previous studies among Chinese¹¹ and Taiwanese^{12;13} youth have established that factors such as family conflicts (inter-parental and parent-child), and low levels of family functioning and family communication (captured, for example, by the Family Adaptation, Partnership, Growth Affection, Resolve (APGAR) Index) directly increase the risk of internet addiction. However, evidence is scarce on whether aspects of family life – e.g. perceived strength of family support and the amount of time spent together as a family - moderate the associations between SMU and well-being. As a protective factor, family belonging (indexed for example through social/emotional support) could buffer against online harms by fostering psychological resilience to the potential harms of online social networking.¹⁴ Conversely,

impaired family relationships may drive heavy SNS use – and at the same time – may leave SNS users less emotionally equipped to cope with the problematic aspects of SNS use.

Therefore, using cross-sectional data collected from young adults living with their parent(s) in the UK, we examined the independent associations between the amount of time spent on SNS and family belonging on well-being. Secondly, we examined the moderating role of different markers of family belonging. Our hypothesis was that more time spent on SNS would be more strongly associated with lower well-being among younger adults with weaker levels of family belonging.

Methods

Participants

Participants came from Understanding Society, the UK Household Longitudinal Study (UKHLS); a nationally representative study, which interviews all household members annually. The Great Britain sample is a proportionately stratified (equal-probability), geographically clustered sample of residential addresses; the Primary Sampling Units (PSUs) are postal sectors (stratified by 9 English regions, Scotland and Wales), population density and minority ethnic density. The Northern Ireland sample was drawn from a list of domestic properties and was unclustered. Data was collected face-to-face through household and individual adult questionnaires, plus a paper self-completion questionnaire.^{15;16} The University of Essex and Oxfordshire Research Ethics Committees gave ethical approval; adults (aged 16+ years) provided written consent. Our study focused on young adults aged 16-21 as only participants in this age range completed questions on SNS use and family belonging (Wave 3: 2011-13).

Mental well-being

Positive mental well-being (hereafter referred to as well-being) was assessed at Wave 4 (2012-14) with the Short (7-item) form of the Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS).¹⁷ Compared to the full 14-item instrument, SWEMWBS mainly encompasses aspects of eudemonic well-being (positive functioning, mindset and relationships), excluding hedonic dimensions of well-being (positive feelings, affect, emotions).¹⁷ In accordance with the already established unidimensional nature of the scale¹⁷, all items were summed to obtain a single score (range 7-35) with higher scores indicating higher well-being.

Use of social networking sites

Questions on SNS were asked for the first time at Wave 3 (2011-13). Participants who belonged to a social website were asked: *“How many hours do you spend chatting or interacting with friends through social websites on a normal weekday?”* Response options were on a 5-point scale, ranging from none to 7+ hours; we combined these into 3-groups to achieve sufficient numbers: none (‘non-users’); less than an hour and 1-3 hours/weekday (‘moderate users’); and 4+ hours/weekday (‘heavy users’). We assigned those not belonging to any social website to the non-users category.

Family belonging

Family belonging encompasses both external assets, such as frequency of shared family meals and perceived strength of family support, and internal assets, such as importance of family to personal identity.¹⁸ Family meal frequency (hereafter referred to as family meals) was assessed as follows: *“In the past 7 days how many times have you eaten an evening meal together with the rest of your family who live with you?”* (range: none to 6-7 times). Strength of family support was assessed by asking: *“Do you feel supported by your family, that is the people who live with you?”* Response categories ranged from “I feel supported by my family in most or all of the things I do” to “I do not feel supported by my family in the things I do”.

Importance of family to personal identity was assessed as follows: “*How important is your family to your sense of who you are?*” Response categories ranged from “Very important to my sense of who I am” to “Not at all important to my sense of who I am”. Questions on family meals and strength of family support were only asked to participants who were still living at home with their parent(s).

Confounders

Potential confounders of the SNS use and well-being associations were chosen based on previous studies.^{3;4} We combined age at Wave 3 into 2-groups for descriptive purposes (16-18; 19-21 years). Total gross household income in the previous month (equivalised for household composition and grouped into quintiles) and the number of cars belonging to the household (0; 1; 2+) were chosen as markers of socioeconomic position (SEP).

Statistical analyses

We performed initial descriptive analyses to identify the correlates associated with SNS use. Statistical significance was assessed using Pearson’s χ^2 test for independence in 2-way tables. Linear regression modelling was used to identify the factors associated with well-being scores at Wave 4. SNS use was entered in the models as a categorical variable: moderate-use was the most prevalent and was used as the reference category. The family belonging measures were entered in the models as categorical variables (highest levels of belonging as the reference). We examined three models. Firstly, we explored the bivariate associations (**Model 1**). Secondly, we explored a multivariate model that contained main effect terms for SNS use and the three markers of family belonging in addition to gender and SEP; age was included as a continuous variable (**Model 2**). We investigated potential interactions between SNS use and well-being by gender but there were none; we therefore pooled the data and adjusted the regression coefficients for gender. Thirdly, we added

interaction terms to Model 2 to explore whether the SNS use and well-being association was moderated by the measures of family belonging (**Model 3**). Wald tests were used to assess the joint significance of the SNS use and family belonging terms. Interaction terms were retained if statistically significant ($p < 0.05$). We decided a priori to run separate models for each family belonging measure (rather than estimate a single model) in order to evaluate the associations separately.

We performed complete-case analyses by excluding those with missing data on the SNS, well-being and family belonging indicators (<5%). Analysis was performed using Stata V15.1 (StataCorp, Texas), accounting for the complex survey design.

Results

The analytical sample comprised $n=2229$ participants aged 16-21 at Wave 3 (2011-13) who lived with their parent(s), belonged to a social website (or who did not belong to a social website, but reported having internet access) and had well-being data at Wave 4 (2012-14) (see **Figure A1**). Females (52.1%) outnumbered males; the majority belonged to a social website (92.2%). Just under three-in-ten (29.6%) had 6-7 family meals in the past 7-days; 11.6% had none. Most felt supported by the family members they lived with “in most of the things I do” (71.9%), and most regarded family as being very important to “my sense of who I am” (68.1%).

Correlates of SNS use

Overall, 10.4% of participants did not use SNS, 73.3% were moderate-users and 16.3% were heavy-users (**Table 1**). Females ($p < 0.001$), 16-18 year-olds ($p = 0.003$), and those in the disadvantaged SEP groups ($p < 0.001$) were more likely to be heavy SNS users. 24.2% of participants who reported having no evening family meals in the past 7-days were heavy SNS users compared with 12.8% of those who had 6-7 family meals ($p = 0.016$). Perceived strength

of family support was on the borderline of statistical significance with those not reporting support in most things being more likely to be heavy SNS users ($p=0.056$); the importance of family to personal identity was not significantly associated with SNS use ($p=0.593$).

Table 1 here

Correlates of well-being

Table 2 shows the results of the linear regression analyses of the SNS use and well-being associations with family meal frequency as the marker of family belonging. In bivariate analysis (Model 1), SNS use was significantly associated with well-being (Wald test: $p=0.004$), with scores being lower on average for heavy-users compared to moderate-users (-0.88; 95% CI: -1.61, -0.15). Lower family meal frequency was significantly associated with lower well-being (Wald test: $p<0.001$). For example, compared to those having 6-7 family meals in the past 7-days, those having none had well-being scores that were 1.89 points lower on average (95% CI: -2.76, -1.02). Although the pattern was similar, SNS use did not significantly predict well-being in the fully adjusted model (Model 2; Wald test: $p=0.163$), whilst family meal frequency remained statistically significant (Model 2; Wald test: $p<0.001$). Findings were similar for perceived strength of family support and for the importance of family to personal identity (Model 2; Wald tests: $p<0.001$; Tables A1 and A2).

Table 2 here

The SNS use and well-being association was significantly moderated by family meals (Model 3; Wald test $p=0.009$); predicted well-being scores based on this model are shown in **Figure 1**. SNS use was more strongly associated with well-being scores among those reporting no family meals. Among those reporting no family meals, well-being scores were lower on average for heavy-users of SNS compared to non-users (22.4 vs. 25.3). In contrast, well-being scores were similar across the SNS use categories among those having more family meals.

For example, the well-being scores among those who shared 6-7 meals in the past 7-days were 24.8, 25.1 and 25.1 for non-, moderate-, and heavy-users respectively. Perceived strength of family support and the importance of family to personal identity did not moderate the SNS use and well-being associations (Model 3; Wald tests: $p > 0.05$; Tables A1 and A2).

Figure 1 here

Discussion

Using UK data from young adults currently living with their parent(s), we examined the independent associations between SNS use and family belonging on eudemonic well-being, and investigated whether family belonging moderated the association between SNS use and well-being. Our study produced three main findings. Firstly, bivariate analyses showed that well-being scores were lower on average for heavy SNS users (compared to moderate-users) and for those with relatively weaker family belonging. Secondly, in fully adjusted models, well-being correlated significantly with each family belonging measure but not with SNS use. Thirdly, family meal frequency moderated the SNS use and well-being association. Among those having no family meals in the past 7-days, well-being scores were significantly lower for heavy SNS users compared to non-users. In contrast, well-being scores were similar across the SNS use categories among those having more family meals.

Worldwide evidence suggests that associations between heavy SMU and poor mental-health and lower well-being among children, adolescents and young adults is a global phenomenon⁵⁻⁷, possibly reflecting time forgone on high quality face-to-face interaction with friends¹, the stress and/or anxiety that can accompany SMU (e.g. negative upward social comparison¹⁰), and online harassment. Such explanations may also apply for similar associations among young adults. We found a significant bivariate association, with lower well-being scores among heavy SNS users compared to moderate-users. Attenuation of the SNS use and well-

being association in fully adjusted analyses indicated that the bivariate association was confounded to some extent by the indicators of family belonging and SEP. This finding may reflect the weaker impact of SMU on the eudemonic aspects of positive well-being captured in our study relative to its stronger impact on different – and more comprehensive - aspects of mental-health and well-being such as depressive symptoms^{2:5}, socioemotional difficulties³, psychological distress¹⁹, and anxiety²⁰.

Independently of SNS use, we found that well-being scores were lower on average among participants with relatively weaker family belonging (consistent for each indicator). Potential explanations for this association include the protective role of supportive family relations in buffering against the effects of stress and facilitating resilience.²¹

In partial agreement with our hypothesis, we found that heavy SNS use was more strongly associated with lower well-being among participants who had no family meals in the past 7-days. Neither perceived strength of family support, nor importance of family to personal identity, moderated the SNS and well-being association. We also found that family meals was a stronger correlate of SNS use than the other family belonging markers, with those having no family meals being most likely to be heavy-users. It is unclear why the heaviest-users of SNS having no family meals had the lowest well-being scores. Heterogeneity in family meal frequency relates directly and indirectly with numerous childhood health and well-being outcomes, although the exact mechanisms for this association is unclear.²² We can speculate that having face-to-face conversation with family members during meal times – viewed by some as important in strengthening cohesion and belonging²³ – may help positively develop and build young adults' resilience to the stresses and/or anxieties that accompany offline and online activities. Conversely, the absence of face-to-face family conversation – possibly linked to family conflict – may drive heavy SNS use and leave users vulnerable to online harms. An alternative interpretation of our finding is that family mealtime could be protected

non-SNS time, thereby directly reducing the amount of exposure to SNS and its harms. In response to the emerging challenge of screen time, UK Chief Medical Officers have suggested that family meal times be ‘screen-free’ to ensure full attention is given to face-to-face conversation.^{24;25} The potential role of various aspects of family belonging in moderating the SNS and well-being associations merits further investigation using longitudinal data; future research should also explore family belonging in the context of mediating pathways.

Strengths, limitations and future research

Our study has a number of strengths. Few studies to date have examined the importance of family belonging as a moderator of the SNS and well-being relationship, helping to fill an evidence gap identified in a recent extensive literature review on social media research.²⁶ The measures of family belonging employed in our study were reasonably all encompassing in terms of external assets such as perceived strength of family support and family meal frequency¹⁸ and internal assets in terms of importance of family to personal identity.¹⁸

Several limitations warrant caution when interpreting our findings. Firstly, small sample sizes inevitably resulted in our analyses being statistically underpowered. Questions on family meals and strength of family support were only asked to young adults aged 16-21 who were still living at home with their parent(s) at Wave 3. Our analytical sample was lower as a result, and it reduced the generalizability of our findings to young adults living at home with their parent(s). Secondly, information on the key variables was collected by self-report, and so social desirability may to some extent have influenced the responses. Thirdly, as the UKHLS only collected data on the amount of SNS use, we were unable to assess other aspects of SMU such as active- compared to passive-use.²⁷ Furthermore, the single question on the “*amount of time spent chatting or interacting with friends through social web-sites*” was rather vague and open to interpretation. Participants could have used smartphone applications such as the Facebook Mobile App to chat to their friends without going through

the web-based version of its site. We were unable therefore to ascertain whether participants included or excluded use of such mobile apps when answering this question. In addition, we could have misclassified the frequency that young adults had a meal together with the rest of their family on average to some extent by having to focus specifically on the item capturing the number of evening meals in the past 7-days. We were also unable to assess how family members interact during shared meals; the quality of family interaction may be a vital factor in understanding how family meals can directly or indirectly influence health outcomes.²² No questions asked young adults whether they abstained from SNS use during mealtimes. These are further interesting lines of enquiry. Fourthly, we cannot rule out the possibility that the SNS and well-being associations have changed in the few years since the data used for the present study was collected. Fifthly, our findings are limited to an assessment of eudemonic well-being. Finally, we cannot draw causal inferences from our cross-sectional findings due to the inevitability of residual confounding and the potential circularity of the association between SNS use and well-being. Online social networking may undermine well-being through users comparing themselves negatively to their online peers; alternatively, persons with low well-being may be more likely to try to alleviate it by heavy use of SNS in the first place.²⁸ We recommend that future research employ stronger research designs to improve causal inference, including the use of longitudinal, experimental and cross-national data.

Conclusions

In conclusion, heavy use of SNS was more strongly associated with lower levels of eudemonic well-being among younger adults who did not share any evening meals with the family members they lived with. Technological solutions along with educational initiatives to improve digital safety may only go so far in minimizing harms; policies to strengthen family life – including support to enable families to spend more time together in face-to-face conversation – may also be instrumental in developing resilience and promoting well-being.

Figure 1 Legend

Predicted well-being scores by amount of time spent on social networking sites (SNS) and evening family meal frequency.

Author Disclosure Statement

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