



Norms of online expressions of emotion: Comparing Facebook, Twitter, Instagram, and WhatsApp

new media & society
2018, Vol. 20(5) 1813–1831
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DOI: 10.1177/1461444817707349
journals.sagepub.com/home/nms



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Abstract

The main aim of this study was to examine the norms of expressing emotions on social media. Specifically, the perceived appropriateness (i.e. injunctive norms) of expressing six discrete emotions (i.e. sadness, anger, disappointment, worry, joy, and pride) was investigated across four different social media platforms. Drawing on data collected in March 2016 among 1201 young Dutch users (15–25 years), we found that positive expressions were generally perceived as more appropriate than negative expressions across all platforms. In line with the objective of the study, some platform differences were found. The expression of negative emotions was rated as most appropriate for WhatsApp, followed by Facebook, Twitter, and Instagram. For positive emotion expression, perceived appropriateness was highest for WhatsApp, followed by Instagram, Facebook, and Twitter. Additionally, some gender differences were found, while age showed little variations. Overall, the results contribute to a more informed understanding of emotion expression online.

Keywords

Internet, positivity bias, self-disclosure, self-expression, social context, social network sites

Social media allow individuals to easily share their thoughts and feelings with others. At the same time, users need to carefully weigh the appropriateness of doing so within the variety of social contexts that different platforms present. So far, research has pointed

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toward an online “positivity bias,” referring to the majority of posted content being positively rather than negatively valenced (Reinecke and Treppe, 2014). This has been argued to be a result of prevailing positivity norms. To date, however, the perceived appropriateness (i.e. injunctive norms) of expressing emotions on social media has received little scholarly attention. Understanding which perceived norms of emotion expression prevail may provide insights not only into social media’s positivity bias but also into the extent to which online expressions of negative emotions are considered inappropriate.

This study aims to examine the prevailing injunctive norms of emotion expression on four popular social media platforms (i.e. Facebook, Twitter, Instagram, and WhatsApp). Injunctive norms refer to the extent to which people perceive certain behaviors to be appropriate or inappropriate (e.g. Cialdini and Trost, 1998). To gain a nuanced understanding of normative patterns of emotion expression, this study focuses on the expression of discrete positive and negative emotions and aims to compare their perceived appropriateness on different social media platforms. The focus on discrete emotions, rather than taking a dimensional perspective, offers greater precision in determining how different self-expressions vary in their perceived appropriateness. In addition, while much research focuses on single platforms, each social media platform presents a vastly different social context due to its unique features (e.g. Marwick and boyd, 2011; Wilson et al., 2012). Understanding differences across platforms thus allows for a clearer view on the current prevailing norms.

To further determine patterns of perceived norms in expressing emotions, differences in age and gender are also considered. Research has thus far generated mixed results in establishing differences for these demographic variables in expressive behaviors online (e.g. Taddicken, 2014). However, given the focus on the expression of emotions, men and women may come to display different perceptions of appropriateness when, for instance, seen from a socialization perspective (Thelwall et al., 2010). In addition, self-disclosure marks an important role in adolescent development for which social media function as one of its primary tools (e.g. Valkenburg and Peter, 2011). To understand differences in perceived norms from a developmental perspective, both late adolescents (15–18 years) and emerging adults (19–25 years) were selected for this study.

In sum, the overall goal of this work is to illuminate normative patterns of expressing emotions on social media by means of a survey. In doing so, we maintain three specific objectives. First, by investigating the perceived appropriateness of disclosing positive and negative emotions, this study provides a detailed picture of a potential positivity bias of online emotion expression. Second, this study aims to elucidate how perceived injunctive norms of specific emotion expressions differ across different social media settings. Third, we explore how these perceived injunctive norms vary according to age and gender.

Norms, emotion expression, and social media

Social norms, routinely conceptualized as injunctive and descriptive norms, are regarded as the explicit and implicit rules that inform individuals on what is deemed acceptable behavior in a given social context (Cialdini and Trost, 1998). In contrast to descriptive norms, which in the context of self-expression refer to the observation of what people

typically express, injunctive norms refer to the perception of what most people deem appropriate or inappropriate expressions in certain situations. Moreover, injunctive norms “motivate behavior by promising social rewards or punishments” (Cialdini and Trost, 1998: 157). The perceived risks of social punishment that are associated with injunctive norms are in particular relevant to expressions of emotion. According to the Disclosure Decision Model, the perceived social risks likely influence the depth of disclosures in terms of the sharing of emotionally intense or negative personal information (Omarzu, 2000). These risks include social rejection, disapproval, or betrayal by others (Greene et al., 2006), as well as a negative public-image (Leary and Kowalski, 1990). Studying injunctive norms is thus particularly important for understanding behaviors of self-expression.

Many social media platforms encourage emotional self-expression, inviting users to regularly update on their thoughts, feelings, and experiences to their larger network (e.g. Derks et al., 2008). Qualitative insights have so far revealed that “overly emotional” expressions on Facebook are considered norms violations (Lambert, 2015; McLaughlin and Vitak, 2012). Research has further provided very little empirical insight into which perceived norms of self-expression prevail on social media. However, empirical studies have consistently found that individuals post both positive and negative emotional expressions online, albeit with a bias toward the positive (e.g. Lin et al., 2014). This “positivity bias” may be due to prevailing positivity norms that social media encourage (Reinecke and Trepte, 2014). Similarly, research has shown that the expression of positive emotions is perceived as considerably more appropriate than negative emotion expression for offline disclosures (Caltabiano and Smithson, 1983). The reason for this is that disclosures of negative emotion are seemingly more intimate and therefore perceived as maladjusted behavior when directed at strangers or acquaintances (Chaikin and Derlega, 1974; Howell and Conway, 1990).

Several theories have attempted to explain online expressions based on the availability of communicative cues. Users are argued to rely more on verbal communication strategies (e.g. content and linguistics) to compensate for the lack of nonverbal cues online (Walther, 1992). In light of this, users might likely express negative emotions online to establish intimate social connections, as research on co-rumination indicates that sharing negative experiences could strengthen relational bonds (e.g. Rose, 2002). At the same time, the hyperpersonal perspective (Walther, 1996, 2007) suggests that due to the control that online settings provide over one’s self-presentation, individuals more typically present themselves in a social desirable way (i.e. positively). Conversely, the reduced nonverbal cues and controllability that online settings afford also facilitate disinhibition, depending on the impression one wants to achieve (Walther, 1996). This disinhibition can lead to more frequent expression of positive emotions, as well as negative emotions. The social identity model of deindividuation effects (SIDE), however, adds that social context becomes more important in such reduced-cue settings, where users more strongly rely on prevailing social norms in expressing themselves compared to face-to-face (Postmes et al., 2000).

While the expression of negative emotions might not be absent on social media platforms, the available research still points toward a greater perceived appropriateness of expressing positive emotions relative to negative emotions. This study examines discrete

emotions rather than taking a valence-based approach (positive vs negative emotions), as scholars have pointed out that different emotions are associated with different patterns of appraisal and action tendencies (e.g. Myrick, 2015). Hence, focusing on discrete emotions is more informative and avoids oversimplifying the patterns of injunctive norms across social media platforms. The first hypothesis reads as follows:

H1. The expression of positive emotions (i.e. joy and pride) is considered more appropriate compared to the expression of negative emotions (i.e. sadness, anger, disappointment, worry) on social media platforms.

Normative differences across social media platforms

While seemingly similar, each online social media platform represents a unique social context in terms of its audience (e.g. Marwick and boyd, 2011). Theoretically, a change of social context should lead to a difference in prevailing norms as other social identities become salient (Postmes et al., 2000). However, social media are becoming increasingly complex in their multi-functionality and evolve at rapid pace, and no theoretical approach has yet been put forward in comparing specific platforms. However, to tease out platform differences and the variety of social behaviors that may be found across them, it is useful to look at the specific features that characterize a platform's social context.

For social media, three features can be used to characterize a platform's social context, which include *behavioral privacy settings*, its *following-mechanism*, and *modality*. Behavioral privacy is defined as the extent to which a behavior is performed in a public or private context (Lapinski and Rimal, 2005). While most social media platforms allow users to adjust their privacy settings, the default settings often function as the standard (Debatin et al., 2009). Related to this is the following mechanism that a platform affords: reciprocal or nonreciprocal. Reciprocal following occurs when two users need to both accept each other in their network, while nonreciprocal following allows a user to follow another without that user having to follow in return (Davenport et al., 2014; Lup et al., 2015). Both these features help in informing the user about the perceived audience of a particular platform. Finally, the main modalities of content that a platform offers—text, visuals, or audiovisuals—characterize the type of content that is typically shared. The combination of these three features helps discern how normative patterns of emotion expression potentially differ among Facebook, Twitter, Instagram, and WhatsApp.

In terms of behavioral privacy settings, the magnitude of normative influences varies according to the extent to which behavioral privacy is perceived (Lapinski and Rimal, 2005). In private settings, the social risks related to a given behavior (e.g. emotion expression) are generally smaller because few people can impart judgment. In contrast, public settings heighten the perceived social risks because one's behavior is available for public scrutiny. Indeed, a study by Bazarova (2012) found that public intimate disclosures were considered less acceptable compared to private intimate disclosures.

In this study, WhatsApp provides the highest level of behavioral privacy. Considered one of the most popular mobile-based instant messenger applications, WhatsApp is generally used to communicate directly with one or a few friends and thus represents a

private channel of communication (e.g. Karapanos et al., 2016). In contrast, Twitter is a microblogging site where users can follow others without the need for approval or reciprocation (i.e. nonreciprocal following). Although users can adjust the privacy settings, the majority maintains the public default, which means that anyone online is able to view one's content (Marwick and boyd, 2011). In this respect, the mobile-based social network site Instagram is largely similar (Lup et al., 2015). On the social network site Facebook, users typically post content visibly to an articulated list of friends (boyd, 2011), which generates a more bounded semi-public space compared to Twitter and Instagram.

The following-mechanism of a platform provides information about the diversity of tie strengths in one's network. Consistent with the social penetration hypothesis, disclosures become more intimate and varied as the relationship between individuals evolves (Altman and Taylor, 1973), resulting in changing perceptions of appropriateness. Here, strong ties include close friends, regular friends, and family, while weak ties include acquaintances and casual contacts (Haythornthwaite, 2005). People are more likely to disclose personal information to strong ties rather than weak ties because a level of trust has been able to develop (e.g. Caltabiano and Smithson, 1983). Relatedly, the expression of negative emotions (i.e. more intimate information) is perceived as less acceptable in interactions with acquaintances and strangers (Chaikin and Derlega, 1974).

As to the platforms investigated in this study, WhatsApp is used to primarily interact with close ties compared to more public platforms such as Facebook, Twitter, and Instagram, which revolve more around communication with weak ties (e.g. Karapanos et al., 2016). Generally, research confirms that strong ties are more likely to use private channels to interact than do weak ties (Haythornthwaite, 2005). Facebook is based on reciprocal following, which makes the proportion of both strong and weak ties in one's audience more balanced (e.g. McLaughlin and Vitak, 2012). In contrast, Twitter and Instagram rely on nonreciprocal following, which is often associated with a larger proportion of weak ties and the inclusion of strangers in one's network (Lin et al., 2014; Lup et al., 2015).

Finally, the modalities of content that a platform encourages inform what types of content users generally share. Current social media platforms allow for multiple modalities of content, which is especially true for both Facebook and WhatsApp through which text, visual, and audiovisual content can be shared. However, for both Twitter and Instagram, the modality of content represents a defining feature. Twitter currently revolves around publishing short 140-character text messages. This feature has led Twitter to evolve toward a popular tool for short and immediate commentary on real-time happenings, including both personal and news events (Kaplan and Haenlein, 2011). Research has shown that on Twitter, in part due to these characteristics, content is mainly negatively valenced even when it concerns positive events (Naveed et al., 2011; Thelwall et al., 2011). Instagram, in contrast, is a platform focused on the sharing of pictures enhanced by filters. This emphasis on visuals and aesthetics, as some scholars argue, leads users to focus on sharing positive and even self-promotional content (e.g. Lup et al., 2015; Sheldon and Bryant, 2016).

In summary, Facebook presents a semi-public setting for which users' networks are typically composed of both strong and weak ties. These characteristics make it

seemingly acceptable to express both negative and positive emotions, which research on Facebook self-disclosures confirms (e.g. Moreno et al., 2011; Qiu et al., 2012). Twitter is in comparison more public and used primarily to publish information and commentary visible to weak ties. However, the short message feature appears to invite primarily negative commentary. Instagram is similar to Twitter in terms of its public setting and non-reciprocal following. Its focus on visuals and aesthetics, contrarily, appears to make the expression of positive emotions more conventional. WhatsApp can be characterized as a private platform that is mainly used to interact with close friends and family (i.e. strong ties), opening up the possibility for intimate conversation. The expression of emotion is therefore expected to be considered most appropriate on WhatsApp compared to the other social media platforms. Based on these characterizations, the following hypotheses were put forward:

H2. The perceived appropriateness of expressing negative emotions (i.e. sadness, anger, disappointment, and worry) is higher for Facebook, followed by Twitter and last Instagram.

H3. The perceived appropriateness of expressing positive emotions (i.e. joy and pride) is higher for Instagram, followed by Facebook, and last Twitter.

H4. For WhatsApp, the perceived appropriateness of expressing both positive and negative emotions is highest compared to Facebook, Twitter, and Instagram.

Differences for age and gender

Gender and age may affect how one perceives the injunctive norms of emotion expression on social media platforms. Concerning age, younger people seem to disclose more to peers than older people in both offline (Parker and Parrot, 1995) and online settings (e.g. Christofides et al., 2012). In addition, younger users are more likely to post self-derogating messages than older users (Bareket-Bojmel et al., 2016). Social media have been argued to be especially suited for young people to practice self-disclosure (Livingstone, 2008; Valkenburg and Peter, 2011), although other studies have not found any age differences in self-expressions online (e.g. Taddicken, 2014). Due to inconclusive evidence on this topic, it is difficult to predict age differences. However, younger users may have different perceived norms compared to those that have been using online communication for longer. We asked the following question:

RQ1. How do late adolescents and emerging adults vary in their perceived appropriateness of the six types of emotional self-expression across different social media platforms?

For gender, differences in disclosure behaviors have traditionally been attributed to socialization processes. From an early age, girls are taught to be more expressive and sensitive, while boys are expected to restrain from affective behaviors (e.g. Mesch and Beker, 2010). Some studies have found that women use more affective words and express more emotional content on social media, while men more often portray assertiveness and

serious expressions in their self-presentations (e.g. Tifferet and Vilnai-Yavetz, 2014). However, other studies have failed to find gender differences in the context of disclosure (e.g. Cho, 2007; Thelwall et al., 2010). Given these inconsistent results, we examine the following research question:

RQ2. How do males and females vary in their perceived appropriateness of the six types of emotional self-expression across different social media platforms?

Method

Sample and procedure

Participants were recruited through email from a subject pool of a professional research company in March 2016. Institutional approval was granted prior to the collection of data. Based on predetermined sample quota in terms of age (50% late adolescents, 50% emerging adults) and gender (50% female, 50% male), 1201 individuals were surveyed. The company reached out to a large number of subject pool participants from different parts in the Netherlands that fit the quota and continued until the required number of participants was met. A multistage randomization was employed by the company, meaning that participants are first assigned to a series of profiling questions after which they are randomly assigned to a survey based on their answers. Approximately, half of the participants were between the ages of 15 and 18 years ($n = 591$) and half between the ages of 19 and 25 years ($n = 610$). In addition, 48.8% of the full sample was male, and 51.2% was female. Individuals were only allowed to participate after actively granting consent, which for the under-aged participants included parental consent as well. Participants received monetary compensation after completion, in line with the research company's guidelines.

Measures

Platform use. Participants were presented with a list of 21 social media platforms, for which they could indicate active use. Active use was defined as being a registered user and having used the platform at least once in the past month, and primarily served as a filter question for further questions. Participants were presented with statements for each perceived norm of emotion expression separately for Facebook, Twitter, Instagram, and WhatsApp. To avoid question order effects, the order in which the blocks of questions for each platform were presented to participants was randomized.

Perceived injunctive norms of positive emotion expression. Participants were asked to indicate, per platform, to what extent they agreed with the statements "The people who are important to me would be okay with me posting about something that made me joyous" and "The people who are important to me would be okay with me posting about something that made me proud." These items are based on the operationalization of personal injunctive norms typically used in the literature on norms (e.g. Park and Smith, 2007). To effectively measure perceived injunctive norms, items should focus on how participants

perceive important others' approval (i.e. "people who are important to me") and on the personal nature of the emotion expression of interest (i.e. "something that made me"). Responses were measured using a five-point Likert-type scale (1 = *completely disagree* to 5 = *completely agree*).

Perceived injunctive norms of negative emotion expression. The perceived appropriateness of expressing negative emotions was measured in a similar manner to the perceived injunctive norms of positive emotion expression, again separately for each platform. Participants indicated on a five-point Likert-type scale (1 = *completely disagree* to 5 = *completely agree*) the degree to which they agreed with the statement "The people who are important to me would be okay with me posting about something that made me . . .," which for the negative emotions ended with the adjectives "sad," "angry," "disappointed," or "worried."

Age and gender. Participants were asked to indicate their age through an open-ended response format. This continuous variable was subsequently transformed into a dummy variable, reflecting the age category corresponding to the age ranges of late adolescents (15–18 years; coded as 0) and emerging adults (19–25 years; coded as 1). In addition, participants were asked whether they are male (coded as 0) or female (coded as 1).

Covariates. To assess differences on a platform level, two covariates were included that reflect possible individual variations related to one's network. All covariates were measured separately per platform. An overview of the descriptive statistics for the covariates and demographics are reported in Table 1.

Perceived behavioral privacy. To understand how private (or public) participants perceived different social media platforms, participants were presented with the following situations: "Posting a message (status update) on your own Facebook Wall"; "Posting a tweet that is shared with your list of followers on Twitter"; "Posting an image (including a possible caption) on Instagram"; and "Sending a message to one other person through WhatsApp." Participants indicated to what extent they rated these situations as public or private on a seven-point scale (1 = *very public* to 7 = *very private*).

Privacy settings. Participants were asked to indicate whether the settings of their profile and shared posts were either customized (i.e. visible only to a restricted set of accepted network members; coded as 0) or set to the public default (i.e. visible to anyone on or off the platform of concern; coded as 1).

Analyses

Factor analyses were used to test whether the perceived norms for negative emotions of sadness, anger, disappointment, and worry were statistically distinct from the positive emotions of joy and pride for each of the platforms. Principal component analyses using direct oblimin rotation generated two components for Facebook, Twitter, and Instagram: one for negative emotions and one for positive emotions (all primary loadings exceeded .80; Cronbach's alpha for negative emotions was higher than .92; Pearson's *r* for positive

emotions was .85). For WhatsApp, only one component was extracted. However, when the extraction of two factors was enforced, a similar pattern emerged. The correlation between the two components for WhatsApp was relatively high ($r=.69$). Cronbach's alpha was .95 for the perceived norms of negative emotions, and the correlation for the perceived norms of pride and joy was .87. Taking all perceived norms of negative emotion expression for all social media platforms together revealed a Cronbach's alpha of .94, which for positive emotion expression was .88.

To establish statistical differences between the means of perceived norms of emotion expression for each platform, repeated measures analyses with a linear mixed models approach were used. This approach accounts for the non-independence of residuals that are a result of the multiple observations for each participant. The data were transformed into long format in SPSS to allow for mixed modeling. The perceived norms were then, separately, included as dependent variables with platform (four levels) as the repeated factor. This approach is beneficial for analyzing data that includes missing data, since subjects with missing data points will not be removed from the analyses (e.g. Bagiella et al., 2000). In addition, the mixed models approach allows for fitting specific covariance structures to the data. For the purpose of this study, compound symmetry was selected, which treats all variances as approximately equal and all covariances as approximately equal (Bagiella et al., 2000). This structure is commonly used if there is no logical ordering to the observations, which applies to the current data. We further applied the Bonferroni adjustment within SPSS in comparing main effects to account for multiple testing (Westfall et al., 1997), with alpha levels adjusted to .008 ($=.05/6$) per test. All presented p -values are Bonferroni corrected.

Results

Descriptive statistics

The majority of the sample ($N=1201$) indicated using WhatsApp (90.2%), followed by Facebook (88.3%), Instagram (54.5%), and Twitter (34.6%). As shown in Table 1, the distribution of gender and age was approximately equal across all four platforms. In total, participants indicated to use on average five platforms from the list of 21 social media platforms ($M=4.88$, standard deviation [SD]=2.23). This average was significantly higher

Table 1. Main properties of covariates, sex, and age.

	N	Perceived privacy, M (SD)	Privacy settings		Sex		Age category (years)	
			Custom	Public	Male	Female	15–18	19–25
Facebook	1060	3.56 (1.78)	81.9%	18.1%	47.1%	52.9%	47.3%	52.7%
Twitter	416	3.38 (1.82)	53.1%	46.9%	53.8%	46.2%	47.8%	52.2%
Instagram	655	3.28 (1.66)	60.0%	40.0%	42.3%	57.7%	55.7%	44.3%
WhatsApp	1083	6.15 (1.40)	55.4%	44.6%	47.5%	52.5%	50%	50%

SD: standard deviation.

Table 2. Correlations between perceived norms of emotion expression, covariates, age, and sex for all platforms combined.

	1	2	3	4	5	6	7	8	9	10
1. Sadness	–									
2. Anger	.80***	–								
3. Disappointment	.82***	.82***	–							
4. Worry	.79***	.78***	.81***	–						
5. Joy	.44***	.39***	.43***	.46***	–					
6. Pride	.45***	.42***	.44***	.47***	.84***	–				
7. Privacy settings	.07***	.12***	.11***	.10***	.05**	.07***	–			
8. Perceived privacy	.20***	.20***	.21***	.20***	-.01	-.01	-.05**	–		
9. Age category	-.01	.01	.01	.00	-.05*	-.05**	.02	-.01	–	
10. Sex	.06**	.05**	.04*	.06**	.16***	.14***	-.08***	-.04**	-.01	–

* $p < .05$; ** $p < .01$; *** $p < .001$.

for females ($M=5.04$, $SD=2.25$) compared to males ($M=4.70$, $SD=2.19$), $t(1199)=-2.66$, $p < .01$. For age, this difference was not significant, $t(1199)=1.01$, $p = .272$.

The significant correlations (see Table 2) with some of the perceived norms of emotion expression across the four platforms show that privacy settings and perceived behavioral privacy of platform context may be confounding factors. As individual privacy settings may influence the extent to which one perceives a platform context to be public or private, independent t -tests were conducted. These revealed that, except for WhatsApp ($t(1000)=1.89$, $p = .059$), privacy settings lead to differences in the perceived behavioral privacy of the platform context. That is, users with custom settings rated Facebook as significantly more private ($M=3.67$, $SD=1.79$) than users with public settings ($M=3.19$, $SD=1.64$, $t(1058)=3.39$, $p = .001$). This pattern also applied to Twitter ($M_{custom}=3.98$, $SD_{custom}=1.87$, $M_{public}=2.96$, $SD_{public}=1.70$, $t(414)=5.76$, $p < .001$), and Instagram ($M_{custom}=3.85$, $SD_{custom}=1.64$, $M_{public}=2.64$, $SD_{public}=1.40$, $t(615)=10.14$, $p < .001$). The perceived behavioral privacy of platform context thus appears to differ for each privacy setting, and is therefore included as a nested variable (i.e. within privacy setting) in the mixed modeling analyses as a covariate.

Emotion expression norms and platform differences

Hypothesis 1 stated that, overall, expressions of positive emotions would be perceived as more appropriate than expressions of negative emotions. The perceived appropriateness of positive emotion expression was overall rated as higher ($M=3.91$, $SD=.87$) than the perceived appropriateness of negative emotion expression ($M=3.33$, $SD=.97$). A paired samples t -test revealed that this difference was statistically significant, $t(3213)=35.13$, $p < .001$, thereby supporting Hypothesis 1.

Hypotheses 2, 3, and 4 focused on the differences in the perceived appropriateness of expressing emotions among Facebook, Twitter, Instagram, and WhatsApp. The analyses were performed for each individual emotion to gain a more thorough insight into the

Table 3. Estimated means and standard errors for the perceived norms of emotion expression.

Perceived norms	<i>M</i> (<i>SE</i>)			
	Facebook	Twitter	Instagram	WhatsApp
Sadness	3.23 (.03) ^b	3.14 (.05) ^a	3.09 (.04) ^a	3.66 (.04) ^c
Anger	3.20 (.03) ^a	3.26 (.05) ^a	3.07 (.04) ^b	3.64 (.04) ^c
Disappointment	3.24 (.03) ^a	3.25 (.05) ^a	3.08 (.04) ^b	3.69 (.04) ^c
Worry	3.27 (.03) ^a	3.29 (.05) ^a	3.15 (.04) ^b	3.74 (.04) ^c
Joy	3.90 (.03) ^a	3.78 (.04) ^b	3.93 (.03) ^a	4.05 (.03) ^c
Pride	3.83 (.03) ^{a, b}	3.74 (.04) ^a	3.89 (.04) ^b	4.02 (.03) ^c

SE: standard error.

Means with different superscripts differ significantly from each other within rows, with p at least $<.01$.

patterns that possibly emerge. An overview of all the means and standard errors (*SE*) are provided in Table 3. For the expression of sadness, the test of fixed effects showed a significant influence of platform, $F(3, 2420)=48.26$, $p<.001$, as well as of perceived behavioral privacy, $F(2, 3090)=21.09$, $p<.001$. Pairwise comparisons showed that the expression of sadness was perceived as significantly more appropriate on WhatsApp ($M=3.66$, $SE=.04$) than on all other platforms. The perceived appropriateness of expressing sadness was lowest for Instagram ($M=3.09$, $SE=.04$) and Twitter ($M=3.14$, $SE=.05$), which was significantly lower than for WhatsApp and Facebook ($M=3.23$, $SE=.03$). For the expression of anger, the test of fixed effects also showed a significant influence of platform, $F(3, 2417)=47.26$, $p<.001$, and perceived behavioral privacy, $F(2, 3098)=28.64$, $p<.001$. Here, WhatsApp ($M=3.64$, $SE=.04$) again showed the highest average rating of perceived appropriateness, and differed significantly from Facebook ($M=3.20$, $SE=.03$), Twitter ($M=3.26$, $SE=.05$) and Instagram ($M=3.07$, $SE=.04$) which showed the lowest average rating. The difference between Facebook and Twitter, however, failed to reach significance.

The perceived appropriateness of expressing disappointment was similarly affected by platform, $F(3, 2447)=54.17$, $p<.001$, as well as perceived behavioral privacy, $F(2, 3123)=26.21$, $p<.001$. The pairwise comparisons showed again that for WhatsApp ($M=3.69$, $SE=.04$) the expression of disappointment is perceived as most appropriate, and significantly different from perceived appropriateness ratings for Facebook ($M=3.24$, $SE=.03$), Twitter ($M=3.25$, $SE=.05$), and Instagram ($M=3.08$, $SE=.04$), again showing the lowest rating of perceived appropriateness. The difference in means between Facebook and Twitter was not significant. For the perceived norm of expressing worry, the effect of platform was again significant, $F(3, 2451)=53.05$, $p<.001$, as was the perceived behavioral privacy covariate, $F(2, 3125)=21.90$, $p<.001$. Much like the expression of disappointment, the perceived appropriateness of expressing worry was highest for WhatsApp ($M=3.74$, $SE=.04$), and significantly differed from Facebook ($M=3.27$, $SE=.03$), Twitter ($M=3.29$, $SE=.05$), and Instagram ($M=3.15$, $SE=.04$). The difference between Facebook and Twitter did not reach significance.

Taken together, a consistent pattern emerges for the perceived appropriateness across the different negative emotions. The ratings appeared highest for WhatsApp, followed by both Facebook and Twitter, and lowest for Instagram. Facebook and Twitter were hypothesized to significantly differ in means, which did not appear to be the case. However, the data did confirm the overall hypothesized pattern between platforms. Therefore, Hypothesis 2 was only partially supported.

For the expression of positive emotions, the third Hypothesis predicted that Instagram would show higher ratings of perceived appropriateness compared to Facebook, with lowest ratings of perceived appropriateness for Twitter. The platform showed a significant fixed effect on the perceived appropriateness ratings of joyous expressions, $F(3, 2360) = 10.89, p < .001$, but not of the perceived behavioral privacy, $F(2, 3022) = 2.24, p = .107$. The perceived appropriateness of expressing joy was highest for WhatsApp ($M = 4.05, SE = .03$), followed by Instagram ($M = 3.93, SE = .03$), Facebook ($M = 3.90, SE = .03$), and last Twitter ($M = 3.78, SE = .04$). However, the mean differences between Facebook and Instagram did not reach statistical significance. The perceived appropriateness of expressing pride, was again significantly influenced by platform, $F(3, 2405) = 11.95, p < .001$, as well as by the perceived behavioral privacy, $F(2, 3078) = 5.49, p < .01$. Ratings of perceived appropriateness were highest for WhatsApp ($M = 4.02, SE = .03$), followed by Instagram ($M = 3.89, SE = .04$), Facebook ($M = 3.83, SE = .03$), and last Twitter ($M = 3.74, SE = .04$). The mean difference between Facebook and Twitter, as well as between Facebook and Instagram failed to reach significance.

The perceived appropriateness of expressing positive emotions thus appeared higher for both Instagram and Facebook compared to Twitter, which showed the lowest ratings of perceived appropriateness. Again, the results did not support the hypothesized significant differences between Instagram and Facebook. Hypothesis 3 was therefore only partially supported. Finally, Hypothesis 4 posited that the expression of the positive as well as the negative emotions would be considered most appropriate on WhatsApp. The results confirm that WhatsApp, relative to Facebook, Twitter, and Instagram, had the highest ratings for all positive and negative emotion expressions. Therefore, Hypothesis 4 was supported.

Differences for age and gender

To identify variations in perceived appropriateness of emotion expressions for age (RQ1) and gender (RQ2), these variables were included in the repeated measures with mixed modeling approach along with the covariate of perceived privacy of platform context nested in privacy setting. The results revealed that there were no differences between late adolescents (15–18 years) and emerging adults (19–25 years) for the perceived appropriateness of sadness, anger, disappointment, or worry. For the positive emotions, differences emerged only for the expression of joy on Instagram. Late adolescents ($M = 4.00, SE = .05$) considered the expression of joy more appropriate on Instagram than emerging adults ($M = 3.82, SE = .05, t(3089) = 2.71, p < .01$).

For gender, differences were primarily found for the expression of positive emotions on Facebook, Twitter, and Instagram. This indicates that females rated these expressions as more appropriate than males (see Table 4). The expression of negative emotions on each of these three platforms was largely viewed as equally appropriate by males and

Table 4. Differences in sex for the perceived norms of emotion expression.

Perceived norms	Sex		df	t	p
	Male M (SE)	Female M (SE)			
Facebook					
Sadness	3.19 (.05)	3.27 (.05)	2672	-1.27	.204
Anger	3.15 (.05)	3.24 (.05)	2684	-1.48	.139
Disappointment	3.21 (.05)	3.26 (.05)	2741	-0.71	.476
Worry	3.19 (.04)	3.32 (.04)	2752	-2.27	.024
Joy	3.74 (.04)	4.05 (.04)	2553	-5.74	<.001
Pride	3.70 (.04)	3.95 (.04)	2661	-4.56	<.001
Twitter					
Sadness	3.07 (.06)	3.17 (.07)	3204	-1.11	.268
Anger	3.17 (.06)	3.31 (.07)	3202	-1.54	.125
Disappointment	3.21 (.06)	3.23 (.07)	3200	-0.27	.787
Worry	3.23 (.06)	3.30 (.07)	3199	-0.80	.422
Joy	3.66 (.05)	3.87 (.06)	3210	-2.62	.009
Pride	3.61 (.06)	3.86 (.06)	3204	-3.06	.002
Instagram					
Sadness	3.05 (.06)	3.10 (.05)	3142	-0.64	.526
Anger	3.02 (.06)	3.06 (.05)	3147	-0.58	.559
Disappointment	3.02 (.06)	3.07 (.05)	3161	-0.75	.456
Worry	3.09 (.06)	3.15 (.05)	3164	-0.85	.394
Joy	3.72 (.05)	4.08 (.04)	3105	-5.59	<.001
Pride	3.69 (.05)	4.03 (.05)	3141	-5.12	<.001
WhatsApp					
Sadness	3.53 (.05)	3.81 (.05)	2630	-4.48	<.001
Anger	3.55 (.05)	3.76 (.05)	2642	-3.40	.001
Disappointment	3.62 (.05)	3.79 (.05)	2701	-2.89	.004
Worry	3.65 (.05)	3.84 (.05)	2712	-3.15	.002
Joy	3.94 (.04)	4.15 (.04)	2507	-4.02	<.001
Pride	3.91 (.04)	4.13 (.04)	2618	-4.01	<.001

SE: standard error.

Significant mean differences are marked in bold.

females, with the exception of expressing worry on Facebook. For WhatsApp, females rated the appropriateness of all expressions of emotion as more appropriate compared to males. Females thus perceive the expression of positive emotions across different platforms, as well as the expression of both positive and negative emotions in more private spaces (i.e. WhatsApp), as more acceptable than males.

Discussion

This study mapped out the prevailing injunctive norms of emotion expression for different platforms. More specifically, this study sought to identify the perceived appropriateness

of six different expressions of emotions (i.e. sadness, anger, disappointment, worry, joy, and pride) on Facebook, Twitter, Instagram, and WhatsApp. In doing so, the present findings provide a snapshot of the possible variations in the prevailing perceived norms on expressive behaviors across online spaces and further advance our understanding of self-expression on social media.

The expressions of positive emotions were generally considered more appropriate than expressions of negative emotions across all platforms. This is in line with prior research on the appropriateness of self-disclosure in offline contexts (e.g. Caltabiano and Smithson, 1983), as well as the proportions of positively and negatively valenced messages found in online self-disclosure research so far (e.g. Lin et al., 2014). The expression of negative emotions may be perceived as less appropriate due to the intimacy it carries (Chaikin and Derlega, 1974). In addition, we found differences in perceived norms of emotion expression across platforms. The expression of all six emotions was found to be most appropriate for WhatsApp relative to the other three more public platforms. Our results thus correspond to theoretical and empirical work that has focused on behavioral privacy in relation to self-disclosure (e.g. Bazarova, 2012). In addition, our results also seem to be in line with studies on instant messaging that found intimate and emotional experiences to be shared more often through these more private forms of communication (e.g. Quan-Haase and Young, 2010).

Concerning differences between the three more public platforms, our results only partially confirmed the hypothesized patterns. The expression of negative emotions was rated as more appropriate for Facebook and Twitter compared to Instagram. For positive emotion expression, perceived appropriateness was higher for Instagram and Facebook than for Twitter. This ties in with existing research that has pointed toward a focus on self-promotional content on Instagram due to its visual properties (Sheldon and Bryant, 2016), and the popularity of negatively valenced content on Twitter (e.g. Naveed et al., 2011). The features that are distinct for a social media platform thus seem to invite certain types of expressions and beliefs on what may be considered appropriate, beyond differences in perceived behavioral privacy.

To further understand normative patterns of online self-expression, age and gender differences were also explored. Some gender differences were found, partially confirming that males find it less acceptable to share their feelings, as they rated the overall expression of emotions as less appropriate on WhatsApp than females. Additionally, males rated the expression of positive emotions as less appropriate on the other three platforms relative to females, yet this was not the case for negative emotion expression. This lends partial support to the theoretical understandings of gender differences in the self-disclosure literature. While many studies on self-disclosure have failed to find gender differences (e.g. Cho, 2007; Thelwall et al., 2010), this study provides a more nuanced understanding by taking different platforms into consideration. Our findings suggest that gender differences do not seem to manifest themselves equally across all social media platforms, but particularly among private platforms that encourage more intimate emotion expressions.

The current results show that late adolescents and emerging adults generally do not differ in their perceptions of appropriate emotional self-expression across the different social media platforms. It is possible that these developmental processes have already

partly stabilized between the ages of 15 and 18 years, as young people nowadays engage with social media at the young age of 10 years (Lange, 2014). Additionally, parents now more frequently discuss appropriate and inappropriate online behaviors with their teenage kids (Anderson, 2016), which more likely eliminates differences in behaviors between adolescents and emerging adults through learned inhibitions. However, given that the current data may suffer from selection bias, future research could further explore whether these results hold in other samples of similar age ranges.

Contributions and implications

Ultimately, these findings show that users consider the expressions of both positive and negative emotions acceptable on social media. Overall, this seems to fit the idea of authentic self-presentation in online settings in that expressing negative emotions is acceptable, which is in line with presenting one's "true self" (e.g. Back et al., 2010; Bareket-Bojmel et al., 2016). The relative higher rating of positive expression appropriateness points toward a stronger presence of positivity norms, which corresponds with positive authenticity expectations on social media (Reinecke and Trepte, 2014). However, this finding should not be considered unique to online settings as positivity norms also persist in face-to-face interactions (Howell and Conway, 1990). Generally, the fact that people follow rules of interaction stems from the inherent need to avoid the risk of social sanctions and rejection (e.g. Cialdini and Trost, 1998; Lapinski and Rimal, 2005).

The current findings also provide further information on platform differences. More private spaces in which one can communicate with a specific close friend allow for looser norms of emotion expression, as our findings on WhatsApp showed. This finding, along with the differences that emerged between the public platforms Twitter and Instagram, might further explain why people hold multiple social media accounts and shift between different platforms in expressing themselves. If users feel a need to express themselves emotionally, they will likely select a platform for which they feel such expressions will be deemed appropriate. Future research could further examine the perceived appropriateness of emotion expression among populations from different countries, as uses of social media platforms and perceptions of appropriateness might be country-specific or culturally dependent.

Additionally, the expression of emotion in online settings remains a relatively understudied subject. Norms are argued to be a driver of many social behaviors (Lapinski and Rimal, 2005). The current results provide information on users' perceptions of emotion expression on social media, thereby advancing theoretical knowledge on the online sharing of emotion. Understanding what expressions are considered appropriate and inappropriate could further be used to gain insight into what motivates antinormative behaviors more accurately and the potential adverse consequences this may have compared to normative behaviors of expression online. Research on problematic behaviors such as "flaming" has begun to explore the mechanisms that underlie these tendencies (Derks et al., 2008). However, not much is known about antinormative behaviors related to emotion expression in online spaces and the consequences thereof.

Future considerations

The current findings need to be seen in light of the study's limitations. First, we did not study descriptive norms of emotion expression. Future research could consider this, as the addition of descriptive norms may paint a more detailed picture of the current prevailing norms of expression (Lapinski and Rimal, 2005). This study focused on the perceived social punishments or rewards that may be imposed upon by important others, who in the context of emotion expression would likely be most influential in guiding such sensitive behavior. However, assessing which emotions participants perceive other people to typically express, or whether participants would approve of important others' emotion expressions on social media, is also relevant. Second, based on the current results, it is not possible to single out exactly what features or affordances contributed to the differences in perceived appropriateness across the four platforms studied. However, we believe that the findings nevertheless provide new insights into differences in social context between social media platforms which, given the dearth of comparative social media research, marks a meaningful step toward a more informed perspective on platform differences.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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