

Article

Impact of Emotionally Evocative Screen Content on Emotional State and Food Selection in Generation Z College Students: A Randomized, Between-Subjects Study

Jill R. Silverman ^{1,*}, Zili Huang ², Amanda A. Harb ¹  and Jack R. Thomas ¹

¹ Department of Nutrition Science and Wellness, Farmingdale State College, 2350 Broadhollow Road, Farmingdale, NY 11735, USA; harb@farmingdale.edu (A.A.H.); thomasj@farmingdale.edu (J.R.T.)

² Department of Global Health and Population, Harvard T.H. Chan School of Public Health, 677 Huntington Ave, Boston, MA 02215, USA; zih624@harvard.edu

* Correspondence: silverj@farmingdale.edu; Tel.: +1-934-420-5723

Abstract

Excessive screen usage and exposure to emotionally charged content are public health concerns because they correlate with emotional eating and weight gain. This study investigated the relationship between emotionally charged screen content, emotional shifts, and subsequent food selection. Seventy-two students were randomized to watch happy, sad, or anxiety-eliciting videos. The Discrete Emotions Questionnaire and Wilcoxon signed-rank tests measured changes in emotion. Following the post-questionnaire, students were invited to select from pre-packaged food items. Correlation analysis examined relationships between emotional change and standardized food selection. Use of TikTok and video streaming platforms was associated with higher odds of overweight ($p < 0.05$). “Happy” screen content correlated with increases in happiness, satisfaction, liking ($p < 0.01$), enjoyment, calm, and relaxation ($p < 0.05$), and a reduction in sadness ($p < 0.05$) among students. “Sad” screen content was associated with increases in sadness ($p < 0.001$), grief, dread, and worry ($p < 0.05$). Positive emotions, such as easygoing, were negatively correlated with savory food selection ($r = -0.95$, $p < 0.05$). Loneliness positively correlated with sweet food selections ($r = 0.99$, $p < 0.05$). Emotive screen content is associated with emotional shifts that potentially influence food selection. These findings highlight the need for targeted interventions to address emotional eating among college students.

Keywords: anxiety; BMI; mood; sadness; video; weight



Academic Editor: Wioletta
Agnieszka Zukiewicz-Sobczak

Received: 11 June 2026

Revised: 13 July 2026

Accepted: 20 July 2026

Published: 3 August 2026

Copyright: © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

1. Introduction

Generation Z individuals (Gen Z), those born between 1997 and 2012, spend a significant portion of their daily lives engaged in screen time (ST), utilizing televisions, computers, smartphones, tablets, and other digital devices to consume entertainment media [1]. The Gen Z population averages approximately 8.8 h of ST per day [2], most commonly frequenting sites such as YouTube, Instagram, Snapchat, and TikTok [3]. This abundant time exposed to screens [4], consuming media content, has led to growing concerns about its impact on the weight and health status of this population. Evidence indicates that ST is positively associated with elevated Body Mass Index (BMI), due to increased mindless eating, increased calorie intake, and greater sedentary behavior [5,6]. In a Costigan et al. [7] meta-analysis, 32 out of 33 studies identified a strong positive relationship between ST and weight status. In addition, a study by van Ekris et al. [8] found a strong correlation between

screen use and BMI. An elevated BMI, classified as overweight (BMI 25–29.9) or obesity (BMI 30–34.9), is associated with an increased risk of many metabolic diseases, including type 2 diabetes, heart disease, and high blood pressure [9]. With approximately 56% of Gen Zers, aged 18–25, having a BMI of 25 or higher [10], this cohort is expected to experience a substantial increase in the burden of metabolic disease in the years ahead [11].

Beyond its impact on weight and metabolic health, ST is a significant concern for the emotional well-being of Gen Z college students. Excessive ST exposes this generation to an overwhelming amount of emotionally charged stimuli, which contributes to heightened negative emotional responses [12]. Research consistently demonstrates a strong correlation between screen use and poor mental health outcomes [13], with just two hours of daily screen use being directly linked to increased feelings of anxiety and sadness [7,14–16]. Given that previous studies report alarming rates of mental health struggles among college students—41% experiencing depression, 36% dealing with anxiety, and 14% seriously considering suicide during the 2022–2023 school year [17]—it is crucial to identify factors contributing to this public health crisis.

Multiple studies have demonstrated that feelings of anxiety or sadness among college-aged individuals are associated with an increased prevalence of emotional eating: the consumption of food for comfort rather than physiological hunger [18–22]. Notably, emotional eating is not solely correlated with negative emotions; positive emotions, such as feeling happy, can trigger increased food intake (positive emotional eating), as well [23]. Foods most frequently craved during emotional eating include readily available ultra-processed foods (UPFs)—industrial formulations containing excessive amounts of sugar, fat, and calories [24]. The consumption of UPFs is concerning, as substantial evidence has associated their intake with elevated BMI and the development of metabolic disorders [25,26]. Moreover, evidence indicates that UPFs themselves function as an independent risk factor for poor emotional health, including heightened symptoms of depression, anxiety, and emotional dysregulation [27]. This issue is further exacerbated by the disproportionately high consumption of UPFs among younger individuals, including Generation Z individuals (Gen Zers) [28]. Therefore, emotional shifts triggered by emotive screen content must be considered as a factor contributing to emotional eating and the obtainment of UPFs among this population.

Identifying a relationship between emotive screen content, emotional state, and the subsequent acquisition of ultra-processed foods presents an opportunity to develop targeted interventions that proactively manage mood fluctuations, reduce emotional eating, and promote healthier dietary choices. Given that college-aged Gen Zers spend significant screen time exposed to potentially emotive content, frequently report significant mental health struggles, and are the most prevalent consumers of ultra-processed foods, they represent an ideal demographic for this investigation. Therefore, the purpose of this study was to investigate the association between exposure to emotionally charged screen content and alterations in emotional state, and to evaluate whether these emotional shifts impact subsequent food choices among Generation Z college students.

2. Materials and Methods

Study subjects were recruited using the Sona Systems® (Bethesda, MD. <https://www.sona-systems.com/contact-us/> (accessed on 1 May 2024)) participation pool at Farmingdale State College, Farmingdale, NY. Numerous research studies are advertised through this platform, from which students may randomly select. Students who selected this study were provided with a general overview of its design before consenting to participate. Following consent, participants were randomly assigned a day and time to view one of the four emotionally charged video clips. The Sona Systems® participation pool consists of

students from the departments of Nutrition, Health and Wellness, Psychology, and Business. Study involvement was voluntary and equally available to all Sona Systems® enrollees. Consequently, the final sample size reflected the total number of volunteers who met the inclusion criteria and completed the study. Incentives for participation included extra credit and entry into a raffle for a \$50 Amazon gift card. Participants were aged 18 to 25 years, provided informed consent before participating in the study, and were debriefed regarding study endpoints after completion of the questionnaires. Ethical approval for the study was obtained from the Institutional Review Board (IRB) at Farmingdale State College.

Figure 1 illustrates the flow of this four-armed study, based on the categorization of emotions found in the Discrete Emotions Questionnaire (DEQ). The DEQ is a reliable and validated tool used to identify negative emotions, including sadness (sad, grief, empty, lonely), anxiety (dread, anxiety, worry, nervous), as well as positive emotions: happiness (happy, enjoyment, liking, satisfaction), and neutrality (easygoing, chilled out, calm, relaxation) [29].

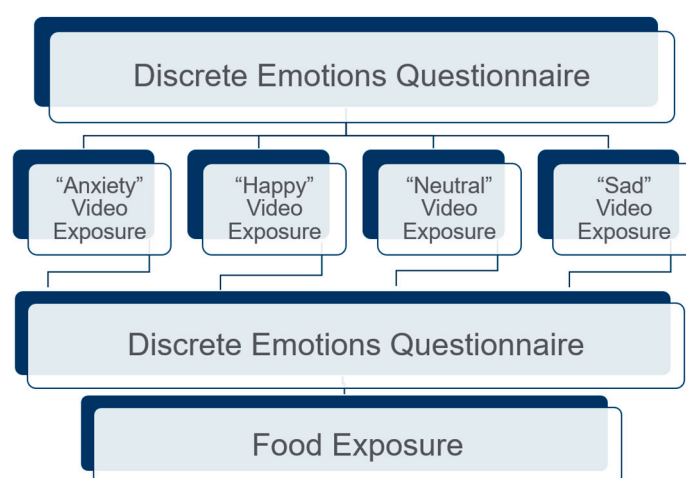


Figure 1. Four-Arm Study Design.

Upon arrival, participants scanned a QR code to access an anonymous Qualtrics questionnaire (File S1). After reviewing and signing the informed consent form, participants completed a questionnaire to collect demographic information, self-reported height, weight, and screen time usage of various media entertainment platforms. Participants then completed the 16-item Discrete Emotions Questionnaire and received a random 5-digit number to use on the post-questionnaire. Upon completion of the survey, students watched one of the following video clips previously validated for their potential to elicit overall feelings of sadness, anxiety, happiness, or neutrality [30]:

“Sad Exposure”—a 3 min and 2 s (3:02) video clip from the movie “My Sister’s Keeper” in which, after a long battle with cancer, a dying teenage girl says goodbye to her mother [31].

“Happy Exposure”—a 2:59 video clip from the movie “Soul Surfer” based on surfer Bethany Hamilton as she returns to competition after losing her arm in a shark attack and surfs an epic wave [32].

“Anxious Exposure”—a 3:20 video clip from “Cast Away” in which a FedEx employee’s plane crashes into the Pacific Ocean, and he fights to stay afloat [33].

“Neutral Exposure”—a 3:05 video clip demonstrating how to cut fabric for a pillowcase [34].

Film clips are commonly used to elicit subjectively experienced emotional states for many research purposes [35,36].

Subsequently, participants were redirected to the Qualtrics questionnaire to enter their unique 5-digit number and complete the 16-item discrete emotion checklist anew. After completing the survey a second time, the study coordinator exposed a previously covered table containing pre-quantified packaged foods. Students were invited to choose any and as many of the food items as desired. To avoid confounders, the foods were presented similarly to each exposure group, and the study coordinator left the room when students made their food selections. Therefore, neither individual food selections nor consumption of the selected foods by participants were observed or recorded. In addition, all four exposures were performed between 1:30 and 2:30 PM (after lunchtime) to control hunger-driven food choices. Participants were allowed unrestricted access to a variety of savory and sweet foods. Savory items included chicken-flavored ramen noodles, cheese sticks, salted cashews, and potato chips, whereas sweet items included fruit-flavored gummies, mini muffins, cereal, and milk chocolate. The foods included in the present study were intentionally selected based on prior research demonstrating a meaningful relationship between emotional states and corresponding food-selection behaviors; a significant correlation between negative emotional states and the increased consumption of calorie-dense, low-nutrient snack-type foods and sweet “comfort” foods [37] has been demonstrated. Chocolate, specifically, was shown to be frequently craved and consumed among those experiencing negative mood states [38]. In addition to chocolate, van Strien et al. [39] utilized salty nuts, chips, jellies, and sugary cereal to measure study subjects’ emotionally driven food choices. After all participants departed the exposure room, the remaining packaged food items were tallied for differential analysis. Students were unaware that food selection was an endpoint of the study until debriefing.

Within two hours of the final study session, participants received a debriefing via SONA, disclosing that the food choices were an actual endpoint of the experiment. Students were then given the option to remove their data from the study while remaining eligible to acquire the aforementioned incentives.

Data analysis was conducted using R programming (R 4.4.1), with a series of statistical tests applied to explore differences among groups, associations between variables, and patterns in response to experimental manipulations. We first summarized descriptive statistics for demographic characteristics (e.g., age, gender, ethnicity) and baseline variables across the four exposure groups and examined group differences in the four exposure groups. For continuous variables, baseline group differences were tested using the Kruskal–Wallis test, due to its suitability for non-parametric data. Chi-squared tests were used to compare categorical variables among the groups. We conducted a logistic regression analysis to investigate the association between social media usage and overweight status [40]. In this model, overweight status (Y) served as the binary dependent variable, where $Y = 1$ indicates that the participant has overweight (defined as $BMI \geq 25$), and $Y = 0$ indicates otherwise. The probability of developing overweight ($P(Y = 1)$) is modeled as a function of social media screen time (in hours) and demographic covariates using the following equation:

$$\begin{aligned} \text{logit}(P(Y = 1)) &= \log\left(\frac{P(Y=1)}{1-P(Y=1)}\right) \\ &= \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Ethnicity} + \beta_4 \text{TikTok}_{\text{Freq}} \\ &\quad + \beta_5 \text{Instagram}_{\text{Freq}} + \beta_6 \text{Snapchat}_{\text{Freq}} + \beta_7 \text{YouTube}_{\text{Freq}} \\ &\quad + \beta_8 \text{Facebook}_{\text{Freq}} + \beta_9 \text{Streaming}_{\text{Freq}} \end{aligned}$$

In this equation, $P(Y = 1)$ is the probability of developing overweight, β_0 is the intercept term, and $\beta_1, \beta_2, \dots, \beta_9$ are the coefficients of each independent variable. Screen time for each social media platform (e.g., TikTok, Instagram, Snapchat, YouTube, Facebook,

and other social media and streaming services) was included as an independent ordinal variable, and additional covariates (age, gender, ethnicity) were controlled for. The model estimates these coefficients (β) to quantify the effect of each predictor on the log odds of overweight status. The exponentiated coefficients (e^{β}) represent the odds ratios, which indicate the relative change in the odds of overweight associated with a one-unit increase in each predictor variable. Model fit was assessed using metrics such as McFadden's R^2 to evaluate explanatory power.

To assess the impact of exposure to different video clips on emotion change, we first performed Wilcoxon signed-rank tests within each exposure group to assess pre-post changes in emotion scores, serving as manipulation checks for the emotion-eliciting stimuli. Then, to examine whether the four video clips differed in their overall emotional impact, we conducted a MANOVA, which allowed for intercorrelations among emotions and provided a multivariate test of between-group differences. Finally, ANOVA tests were used for individual emotions to identify the specific impact of video exposure on emotional responses. To explore the relationship between emotional change and food selection, we standardized food selection measures for savory and sweet foods by dividing total selection by group size, because food selection was recorded at the group level rather than the individual level for privacy concerns and group sizes differed slightly. This produced a per capita food selection estimate that allowed comparable analysis across the four exposure groups. Correlation analyses were then conducted to examine the associations between changes in specific emotions and standardized food selection measures.

3. Results

3.1. Demographics, Anthropometry & Screen Time

Table 1 presents the demographic and baseline characteristics of participants across the four exposure groups: Anxious ($n = 21$), Happy ($n = 21$), Neutral ($n = 15$), and Sad ($n = 15$). The distribution of race across groups was predominantly White, followed by Black or African American, Hispanic, and Other. Chi-square tests indicated no significant differences in race distribution among the groups ($p = 0.1627$). In terms of ethnicity, the majority of participants identified as non-Hispanic or Latino, with no statistically significant difference across the groups. The gender distribution was similarly balanced across groups, with no significant variation. The mean age of participants was approximately 21 years, and the mean BMI ranged from 25.67 to 30.20 across the groups. Kruskal–Wallis tests indicated no significant differences in age or BMI among the four groups. Screen usage was reported across platforms, including TikTok, Instagram, Snapchat, YouTube, Facebook, and other social media and streaming services. Usage rates did not differ significantly among the exposure groups for any of these platforms, as indicated by the chi-square test results (all $p > 0.05$).

Table 1. Descriptive Statistics of Study Subjects.

	Anxious	Happy	Neutral	Sad	<i>p</i>	Test Statistics
<i>n</i>	21	21	15	15		
Race (%)					0.1627	20.2450
White	18 (85.7)	8 (38.1)	7 (46.7)	9 (60.0)		
Black or African American	1 (4.8)	6 (28.6)	6 (40.0)	2 (13.3)		
Hispanic	1 (4.8)	1 (4.8)	0 (0.0)	1 (6.7)		
Asian	0 (0.0)	1 (4.8)	1 (6.7)	0 (0.0)		
Other	1 (4.8)	1 (4.8)	1 (6.7)	1 (6.7)		
I prefer not to respond	0 (0.0)	4 (19.0)	0 (0.0)	2 (13.3)		
Ethnicity (%)					0.3995	2.9491

Table 1. Cont.

	Anxious	Happy	Neutral	Sad	<i>p</i>	Test Statistics
Non-Hispanic or Latino	14 (66.7)	9 (42.9)	7 (46.7)	9 (60.0)		
Hispanic or Latino	7 (33.3)	12 (57.1)	8 (53.3)	6 (40.0)		
Female (%)	15 (71.4)	13 (61.9)	13 (86.7)	10 (66.7)	0.4301	2.7601
Age (mean (SD))	21.48 (3.94)	21.86 (2.89)	21.67 (4.25)	22.00 (2.54)	0.4814	2.4664
BMI (mean (SD))	26.86 (6.19)	25.67 (5.29)	26.80 (4.62)	30.20 (8.01)	0.3515	3.2721
Using TikTok (%)	13 (61.9)	14 (66.7)	11 (73.3)	13 (86.7)	0.4150	2.8523
Using Instagram (%)	20 (95.2)	16 (76.2)	13 (86.7)	13 (86.7)	0.3620	3.1985
Using Snapchat (%)	15 (71.4)	14 (66.7)	8 (53.3)	10 (66.7)	0.7231	1.3253
Using YouTube (%)	15 (71.4)	11 (52.4)	8 (53.3)	8 (53.3)	0.5527	2.0963
Using Facebook and other social media (%)	5 (23.8)	7 (33.3)	5 (33.3)	7 (46.7)	0.5606	2.0571
Using Streaming Services (%)	16 (76.2)	16 (76.2)	11 (73.3)	9 (60.0)	0.6925	1.4558

To test for differences among the four exposure groups, Kruskal–Wallis tests were conducted for continuous variables (Age and BMI), and chi-square tests were applied to categorical variables (e.g., race, ethnicity, gender, and social media usage).

3.2. Association Between Screen Time Usage and Overweight

Figure 2 and Table 2 present the association between time spent on social media platforms and the prevalence of overweight (BMI ≥ 25), controlling for age, gender, and ethnicity.

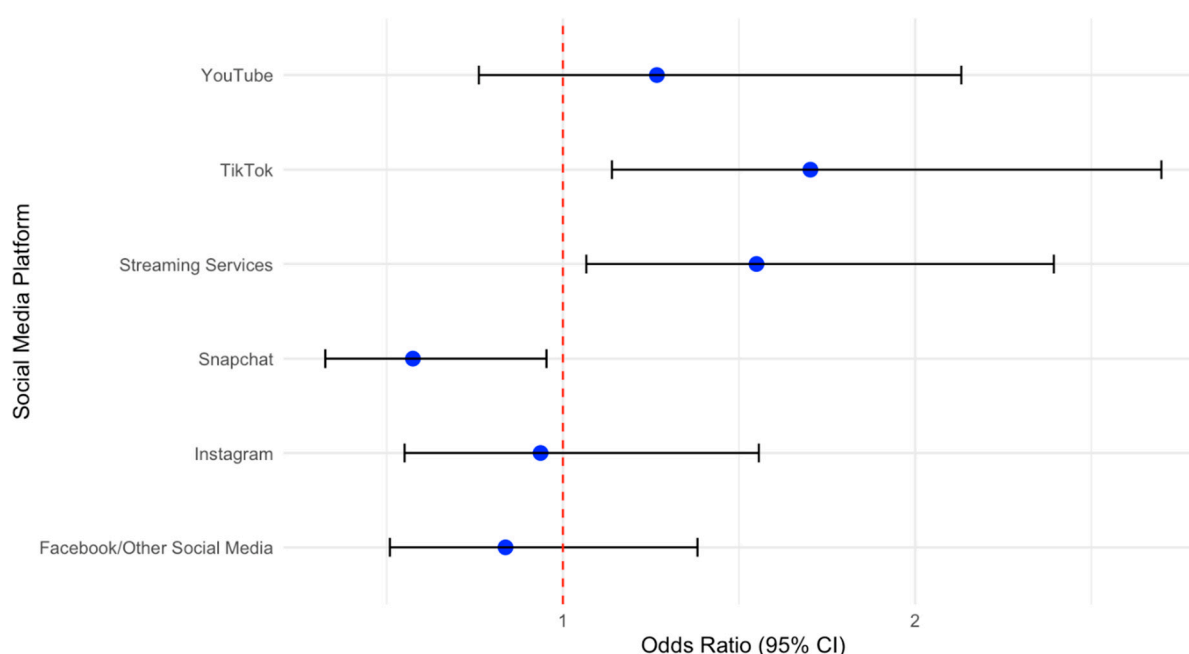


Figure 2. Forest Plot Depicting Odds Ratios for Social Media Screen Time and Risk of Overweight. Blue dots represent the estimated odds ratios, and the horizontal black lines indicate the corresponding 95% confidence intervals. The red dashed vertical line at OR = 1 represents the null value, indicating no association between screen time and the risk of overweight.

Age was positively associated with BMI, with each additional year of age increasing the odds of overweight by 24% (OR = 1.24, 95% CI: 1.01–1.68, $p = 0.0896$). Although this effect was marginally significant, it suggests a potential trend of increased risk of overweight with age. Gender showed a significant association with BMI, as well. Female participants had about 90% lower odds of overweight compared to males (OR = 0.10, 95% CI: 0.02–0.49, $p < 0.01$). However, since body composition was not measured, the authors

cannot conclude whether the elevated BMI among men was due to adiposity or lean muscle mass. Ethnicity (Hispanic vs. Non-Hispanic) was not significantly associated with overweight status (OR = 1.56, 95% CI: 0.48–5.20, $p = 0.4563$). Screen time spent on TikTok was significantly associated with higher odds of having overweight; each unit increase in TikTok usage raised the odds by approximately 70% (OR = 1.70, 95% CI: 1.14–2.70, $p < 0.05$). Streaming services usage was also positively associated with overweight status, with each additional level of streaming hours increasing the odds by about 55% (OR = 1.55, 95% CI: 1.07–2.39, $p < 0.05$). Alternatively, Snapchat usage was significantly associated with lower odds of overweight—for each unit increase in Snapchat usage, the odds decreased by approximately 43% (OR = 0.57, 95% CI: 0.33–0.95, $p < 0.05$). Screen time spent on Instagram, YouTube, Facebook, and other social media platforms was not significantly associated with BMI. The logistic regression model demonstrated a moderate fit with a McFadden's R^2 of 0.2357, indicating that the predictors explain approximately 23.6% of the variance in the likelihood of overweight. While this suggests that the model captures important BMI-related factors, additional unmeasured variables contributing to this outcome must also be considered. To assess potential multicollinearity among predictors, including age, gender, and platform-specific screen use, we calculated variance inflation factors (VIFs). All VIFs ranged from 1.10 to 1.85, indicating low collinearity and supporting the stability of the regression estimates.

Table 2. Logistic Regression Analysis of the Association Between Social Media Screen Time and Overweight Status.

Predictor	Estimate	Standard Error	Z	p-Value	Odds Ratio	95% CI	
						Lower	Upper
(Intercept)	−4.2908	3.0558	−1.4042	0.1603	0.0137	0.0000	2.5246
Age	0.2182	0.1286	1.6974	0.0896	1.2438	1.0079	1.6761
Female (ref: Male)	−2.2963	0.8712	−2.6358	0.0084 **	0.1006	0.0151	0.4905
Hispanic (ref: Non-Hispanic)	0.4464	0.5993	0.7449	0.4563	1.5627	0.4831	5.2005
ST of TikTok Usage	0.5321	0.2166	2.4573	0.0140 *	1.7026	1.1393	2.6987
ST of Instagram Usage	−0.0655	0.2607	−0.2512	0.8017	0.9366	0.5506	1.5561
ST of Snapchat Usage	−0.5546	0.2684	−2.0665	0.0388 *	0.5743	0.3257	0.9535
ST of YouTube Usage	0.2364	0.2578	0.9170	0.3591	1.2667	0.7615	2.1309
ST of Facebook and other Social Media Usage	−0.1778	0.2481	−0.7167	0.4735	0.8371	0.5090	1.3821
ST of Streaming Service Usage	0.4379	0.2030	2.1577	0.0310 *	1.5495	1.0665	2.3935

ST = Screen Time; model fit summary: null deviance is 97.804 on 71 degrees of freedom; residual deviance is 74.749 on 62 degrees of freedom; AIC is 94.749. * $p < 0.05$, ** $p < 0.01$.

3.3. Exposure to Emotionally Charged Screen Time & Change in Emotional State

The impact of video clips on participants' emotions was assessed by examining changes in emotion scores from baseline to endpoint across the four exposure groups. The Wilcoxon signed-rank tests revealed significant within-group changes for several emotions across the exposure groups (Figure 3 and Table 3). In particular, the group exposed to the "happy" video clip exhibited significant increases in feeling happy, satisfaction, liking (all $p < 0.01$), enjoyment, calm, and relaxation (all $p < 0.05$). Exposure to the "sad" video clip revealed significant increases in feeling sad ($p < 0.001$), grief, dread, and worry (all $p < 0.05$). The group exposed to the "anxiety" inducing video content also showed increases in feeling dread, anxiety, worry, grief, nervous or sad, though not statistically significant.

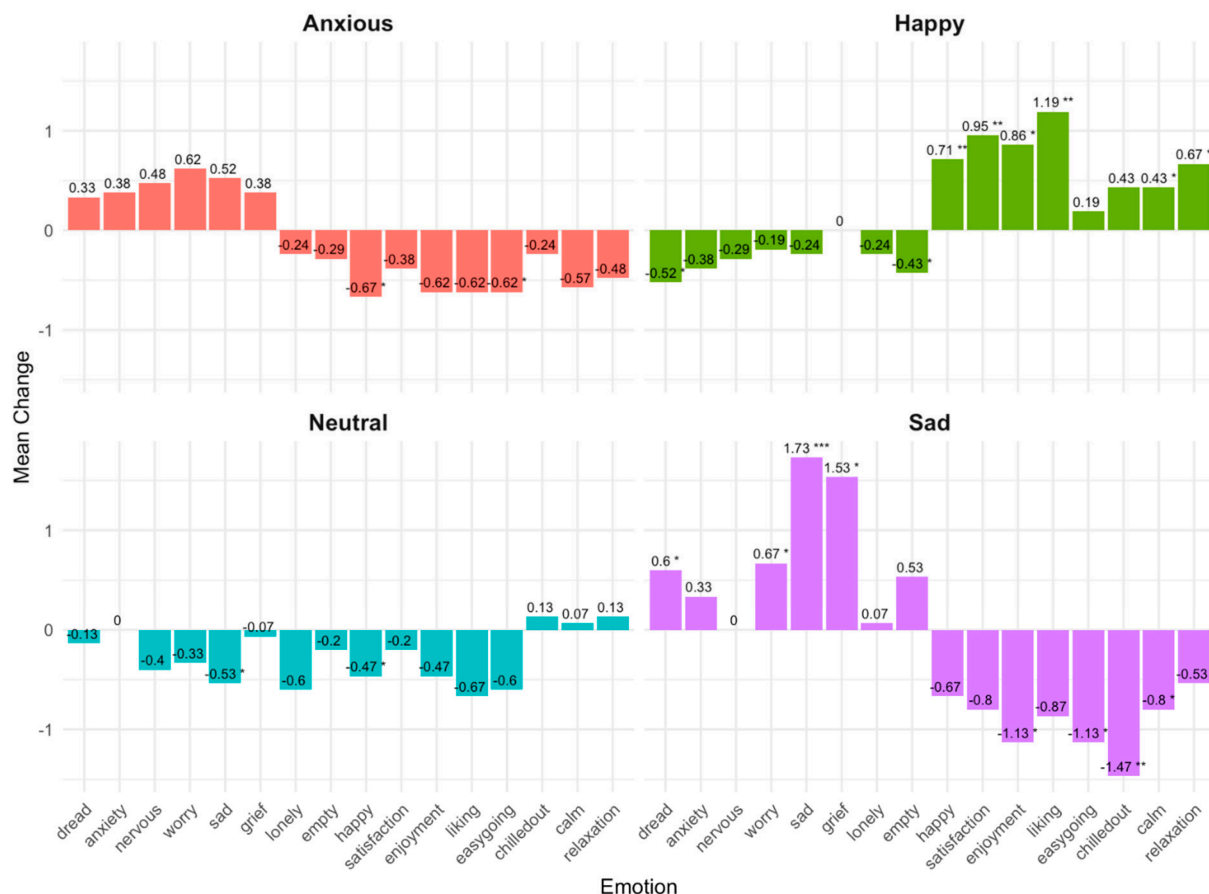


Figure 3. Average Change in Emotion for Each Exposure Group. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3. Wilcoxon Signed-Rank Test: Within-Group Change in Emotional State.

Emotion	MC	Anxious Statistic	p-Value	MC	Happy Statistic	p-Value	MC	Neutral Statistic	p-Value	MC	Sad Statistic	p-Value
Dread	0.33	41.5	0.1449	-0.52	4.0	0.0247 *	-0.13	8.0	0.6653	0.60	21.0	0.0320 *
Anxiety	0.38	47.0	0.2207	-0.38	12.5	0.1246	0.00	21.5	0.9515	0.33	21.5	0.2186
Nervous	0.48	76.5	0.1308	-0.29	6.0	0.1934	-0.40	21.0	0.2918	0.00	5.0	1.0000
Worry	0.62	83.0	0.0549	-0.19	3.5	0.1294	-0.33	12.0	0.2117	0.67	41.0	0.0247 *
Sad	0.52	68.0	0.1139	-0.24	20.0	0.2362	-0.53	3.5	0.0401 *	1.73	105.0	0.0009 ***
Grief	0.38	51.5	0.0940	0.00	5.0	1.0000	-0.07	2.5	1.0000	1.53	72.0	0.0100 *
Lonely	-0.24	12.0	0.2117	-0.24	0.0	0.0890	-0.60	0.0	0.0975	0.07	17.5	0.5877
Empty	-0.29	12.0	0.2261	-0.43	8.0	0.0437 *	-0.20	8.0	0.6707	0.53	37.5	0.0776
Happy	-0.67	8.0	0.0141 *	0.71	116.5	0.0090 **	-0.47	4.0	0.0418 *	-0.67	8.0	0.0901
Satisfaction	-0.38	18.0	0.0950	0.95	147.5	0.0060 **	-0.20	9.0	0.4290	-0.80	11.5	0.0568
Enjoyment	-0.62	14.0	0.0950	0.86	84.0	0.0480 *	-0.47	8.5	0.1997	-1.13	9.5	0.0107 *
Liking	-0.62	17.5	0.0936	1.19	129.0	0.0015 **	-0.67	11.0	0.0946	-0.87	10.5	0.0888
Easygoing	-0.62	20.0	0.0392 *	0.19	62.5	0.5275	-0.60	13.5	0.0806	-1.13	16.5	0.0443 *
Chilled out	-0.24	32.5	0.3363	0.43	78.0	0.1038	0.13	12.5	0.7498	-1.47	0.0	0.0032 **
Calm	-0.57	17.5	0.0935	0.43	56.0	0.0330 *	0.07	14.0	1.0000	-0.80	5.0	0.0412 *
Relaxation	-0.48	15.5	0.0581	0.67	90.0	0.0164 *	0.13	20.0	0.8211	-0.53	9.0	0.1156

MC: Mean Change; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4 reveals a significant multivariate effect of emotionally charged video content on changes in emotion scores (Pillai's Trace = 1.179, $F(48, 165) = 2.227$, $p < 0.001$), suggesting that the video clips influenced the overall pattern of emotional responses across multiple emotion domains.

As seen in Table 5, highly significant differences in feeling sad, grief, happy, satisfaction, enjoyment, liking, and chilled out (all $p < 0.001$) were observed. Significant differences for dread, worry, calm, relaxation (all $p < 0.01$), and easygoing ($p < 0.05$) were observed, as well. These findings suggest that the emotional content of the video clips elicited a significant change in the discrete emotions of the study subjects.

Table 4. MANOVA Results for Changes in Emotion Scores Following Video Exposure.

	Df	Pillai's Trace	Approx. F	Num Df	Den Df	p-Value
Exposure	3	1.1794	2.2268	48	165	0.0001 ***
Residuals	68	-	-	-	-	-

*** $p < 0.001$.**Table 5.** Observed Emotional Shifts Following Video Exposures.

Emotion	F	p-Value
dread	5.0476	0.0032 **
anxiety	1.9265	0.1335
nervous	2.4646	0.0697
worry	4.7470	0.0046 **
sad	14.4553	0.0000 ***
grief	7.9685	0.0001 ***
lonely	1.4550	0.2346
empty	2.4547	0.0706
happy	7.6773	0.0002 ***
satisfaction	8.0392	0.0001 ***
enjoyment	6.4089	0.0007 ***
liking	8.6750	0.0001 ***
easygoing	2.9727	0.0377 *
chilled out	9.1359	0.0000 ***
calm	4.3688	0.0071 **
relaxation	5.0496	0.0032 **

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.4. Change in Emotional State & Food Selection

The relationship between group-level average emotional changes and food selection (savory vs. sweet) was analyzed using correlation analysis (Table 6 and Figure S1).

Table 6. Correlational Analysis Results of Group-Level Emotional Change and Food Selection.

Emotion	Savory Food Selection		Sweet Food Selection	
	Correlation	p-Value	Correlation	p-Value
Dread	0.7844	0.2156	0.6398	0.3602
Anxiety	0.6821	0.3179	0.4136	0.5864
Nervous	0.0443	0.9557	0.3669	0.6331
Worry	0.4387	0.5613	0.7655	0.2345
Sad	0.6434	0.3566	0.9384	0.0616
Grief	0.7384	0.2616	0.9232	0.0768
Lonely	0.2808	0.7192	0.9852	0.0148 *
Empty	0.8954	0.1046	0.7712	0.2288
Happy	−0.7928	0.2072	−0.1795	0.8205
Satisfaction	−0.8966	0.1034	−0.3922	0.6078
Enjoyment	−0.9074	0.0926	−0.3888	0.6112
Liking	−0.8557	0.1443	−0.1551	0.8449
Easygoing	−0.9508	0.0492 *	−0.4729	0.5271
Chilled out	−0.8392	0.1608	−0.8379	0.1621
Calm	−0.7290	0.2710	−0.6542	0.3458
Relaxation	−0.7178	0.2822	−0.5111	0.4889

Spearman's rank-order correlation was conducted to examine the association between group-level emotional change and food selection. * $p < 0.05$.

Correlation analysis identified only a small number of statistically significant associations. Savory food selection was negatively associated with the emotion “easygoing”

($r = -0.95$, $p < 0.05$), indicating that increases in this positive emotion corresponded with lower savory food intake. For sweet foods, loneliness showed a significant positive correlation ($r = 0.99$, $p < 0.05$). All other correlations were non-significant, although several negative emotions (e.g., grief, dread, sadness) showed positive, but imprecise, associations with both savory and sweet food selection, reflecting the exploratory nature of this analysis and the limited group-level sample size.

4. Discussion

Screen time (ST) usage, such as TikTok and streaming services, is predicted to increase in the upcoming years [41]. This trend is a concerning public health issue, as the present study provides evidence that screen time usage is associated with altered weight status, and time spent exposed to emotionally charged screen content induces significant shifts in emotional state and subsequent food choices, among Generation Z college students.

Regarding weight status, greater time spent on TikTok and streaming platforms was associated with increased odds of overweight ($\text{BMI} \geq 25$) after controlling for age, gender, and ethnicity, indicating an independent association between these forms of screen use and weight status. These findings are concerning given that an elevated BMI is associated with an increased risk of metabolic and chronic diseases, including cardiovascular disease and type 2 diabetes, as well as adverse mental health outcomes [9].

When considering the emotive content of the entertainment media, significant increases in feelings of happiness, satisfaction, liking, enjoyment, calm, and relaxation were noted after participants watched the “Soul Surfer” video clip, previously validated to induce feelings of happiness. Participants exposed to “My Sister’s Keeper” reported significant increases in sadness, grief, dread, and worry, consistent with the intended emotional tone of the video [30]. Lastly, although not significant, increases in feelings of dread, anxiety, nervousness, worry, sadness, and grief were noted among those watching the anxiety-provoking “Cast Away” clip. These results are in line with previous findings that emotionally charged screen content can elicit emotional change [35,36].

Further, certain changes in emotive state were significantly correlated with subsequent food selection: increases in “easygoing” (a positive emotion) were associated with lower savory food intake, while feelings of loneliness (a negative emotion) positively correlated with sweet food selections, supporting the hypothesis that emotional state can influence food choices. These findings are particularly troubling, as the Healthy Minds Study [42] revealed that many college students struggle with their mental health—more than 60% report not “thriving”. Specifically, 57% of enrolled college students report feelings of loneliness, suggesting that a large segment of this population may be vulnerable to the adverse emotional and behavioral outcomes observed in the present study [43]. Moreover, results from the present study suggest that participants experiencing greater feelings of loneliness were more likely to obtain ultra-processed foods (UPFs), highlighting a potential link between negative emotional states and unhealthy food-related behaviors. Therefore, the co-occurrence of loneliness and exposure to entertainment media that may intensify negative emotional states, including feelings of loneliness, warrants greater public health attention given its potential association with weight gain among college students [44]. These findings support prior research linking screen time to increased BMI and build upon the existing literature by identifying specific media platforms with overweight. In conclusion, these findings highlight the complex interplay between entertainment media use, emotional responses, food selection, and their potential impact on weight status, emphasizing the need for greater awareness of how specific media platforms may influence health and mental well-being among Generation Z college students.

The findings of the current study have important implications for public health initiatives aimed at reducing the risk of elevated BMI among Generation Z college students. Given the widespread use of entertainment media and social media within this population, interventions should extend beyond simply reducing screen time and instead promote healthier patterns of media engagement. Campus wellness staff can provide support to students to help them recognize how emotionally evocative content may influence their food choices and subsequent eating behaviors.

A major limitation of this study is that all foods offered to participants were UPFs. This design choice restricts interpretation of the results, as it is unclear whether emotional shifts would similarly influence the selection of minimally processed or whole foods. The exclusive use of UPFs may have amplified the observed associations between negative emotions and the selection of calorie-dense, low-nutrient foods. Future studies should include a broader spectrum of food choices to provide a more comprehensive understanding of how emotional fluctuations affect food choice. Additionally, food selection was measured at the group level rather than individually, and actual consumption was not tracked. These factors limit the ability to conclude individual behavior and the direct impact of emotion on food intake. A larger sample size and diversifying the Gen Z cohort would improve generalizability and allow for subgroup analyses. The findings suggest that interventions aimed at reducing exposure to emotionally charged screen content, or at least increasing awareness of its impact, may help mitigate emotional eating and the risk of overweight in college populations. However, recommendations for interventions should be considered preliminary and beyond the scope of this study.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/dietetics5030045/s1>, File S1: Qualtrics Questionnaire; Figure S1: Correlation Between Group-Level Emotional Changes and Food Selection.

Author Contributions: Conceptualization J.R.S.; Methodology J.R.S. and Z.H.; Validation; J.R.S.; Formal analysis Z.H.; Investigation J.R.S.; Resources J.R.S., A.A.H. and J.R.T.; Data curation J.R.S.; Writing—original draft, J.R.S. and Z.H.; Writing—review & editing J.R.S., Z.H., A.A.H. and J.R.T.; Visualization Z.H.; Supervision J.R.S.; Project administration J.R.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: This research study was conducted per the ethical principles outlined in the 2024 Declaration of Helsinki, ensuring that the well-being and rights of all participants are prioritized, including obtaining informed consent before any study procedures and maintaining the confidentiality of personal data. Ethical review and subsequent approval were granted by the Farmingdale State College Institutional Review Board (IRB)(approval code: IRB ID #209, approval date: 18 April 2023). All personal data was obtained using anonymous online questionnaires. Participants gave informed consent via the statement “I am aware that my responses are confidential, and I agree to participate in this survey”, where an affirmative reply was required to enter the survey. They were able to withdraw from the survey at any time without giving a reason. The products tested were safe for consumption.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated and analyzed during the current study are not publicly available due to IRB restrictions, which prohibit public sharing of participant data to protect confidentiality and comply with ethical guidelines. However, the data may be available from the corresponding author upon reasonable request, subject to IRB approval and adherence to data use agreements.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

ANOVA	Analysis of Variance
BMI	Body Mass Index
CI	Confidence Interval
DEQ	Discrete Emotions Questionnaire
Gen Z	Generation Z
IRB	Institutional Review Board
MANOVA	Multivariate Analysis of Variance
MC	Mean change
OR	Odds Ratio
ST	Screen Time
UPF	Ultra-processed Food
VIF	Variation Inflation Factor

References

1. American Academy of Pediatrics. Media and Children. 4 April 2021. Available online: https://www.aap.org/en/patient-care/media-and-children/?utm_source=chatgpt.com (accessed on 12 May 2026).
2. Roberts, J.; Yaya, L.; Manolis, C. The invisible addiction: Cell-phone activities and addiction among male and female college students. *J. Behav. Addict.* **2014**, *3*, 254–265. [CrossRef] [PubMed]
3. Pew Research Center. Americans' Social Media Use. 31 January 2024. Available online: https://www.pewresearch.org/internet/2024/01/31/americans-social-media-use/?utm_source=chatgpt.com#stark-age-differences-in-who-uses-each-app-or-site (accessed on 20 June 2024).
4. Sweetser, P.; Johnson, D.; Ozdowska, A.; Wyeth, P. Active versus Passive Screen Time for Young Children. *Australas. J. Early Child.* **2012**, *37*, 94–98. [CrossRef]
5. Marsh, S.; Mhurchu, C.; Maddison, R. The non-advertising effects of screen-based sedentary activities on acute eating behaviours in children, adolescents, and young adults: A systematic review. *Appetite* **2013**, *71*, 259–273. [CrossRef] [PubMed]
6. Shomaker, L.B.; Tanofsky-Kraff, M.; Zocca, J.M.; Courville, A.; Kozlosky, M.; Columbo, K.M.; Wolkoff, L.E.; Brady, S.M.; Crocker, M.K.; Ali, A.H.; et al. Eating in the absence of hunger in adolescents: Intake after a large-array meal compared with that after a standardized meal. *Am. J. Clin. Nutr.* **2010**, *92*, 697–703. [CrossRef] [PubMed]
7. Costigan, S.A.; Barnett, L.; Plotnikoff, R.C.; Lubans, D.R. The Health Indicators Associated With Screen-Based Sedentary Behavior Among Adolescent Girls: A Systematic Review. *J. Adolesc. Health* **2013**, *52*, 382–392. [CrossRef] [PubMed]
8. van Ekris, E.; Altenburg, T.M.; Singh, A.S.; Proper, K.I.; Heymans, M.W.; Chinapaw, M.J. An evidence-update on the prospective relationship between childhood sedentary behaviour and biomedical health indicators: A systematic review and meta-analysis. *Obes. Rev.* **2016**, *17*, 833–849. [CrossRef] [PubMed]
9. National Institute of Diabetes and Digestion and Kidney Disease (NIDDK). Health Risks of Overweight and Obesity. 2023. Available online: <https://www.niddk.nih.gov/health-information/weight-management/adult-overweight-obesity/health-risks> (accessed on 8 March 2026).
10. Ellison-Barnes, A.; Johnson, S.; Gudzone, K. Trends in obesity prevalence among adults aged 18 through 25 years, 1976–2018. *JAMA* **2021**, *326*, 2073–2074. [CrossRef] [PubMed]
11. Tönnies, T.; Brinks, R.; Isom, S.; Dabelea, D.; Divers, J.; Mayer-Davis, E.J.; Lawrence, J.M.; Pihoker, C.; Dolan, L.; Liese, A.D.; et al. Projections of type 1 and type 2 diabetes burden in the U.S. population aged <20 years through 2060: The SEARCH for Diabetes in Youth Study. *Diabetes Care* **2023**, *46*, 313–320. [CrossRef] [PubMed]
12. U.S. Department of Health and Human Services. Youth Mental Health and Social Media: Advisory. 2023. Available online: <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf> (accessed on 12 April 2026).
13. Deyo, A.; Wallace, J.; Kidwell, K.M. Screen time and mental health in college students: Time in nature as a protective factor. *J. Am. Coll. Health* **2023**, *72*, 3025–3032. [CrossRef] [PubMed]
14. Hoare, E.; Milton, K.; Foster, C.; Allender, S. The associations between sedentary behaviour and mental health among adolescents: A systematic review. *Int. J. Behav. Nutr. Phys. Act.* **2016**, *13*, 108. [CrossRef] [PubMed] [PubMed Central]
15. Iannotti, R.J.; Janssen, I.; Haug, E.; Kololo, H.; Annaheim, B.; Borraccino, A. HBSC Physical Activity Focus Group. Interrelationships of adolescent physical activity, screen-based sedentary behaviour, and social and psychological health. *Int. J. Public Health* **2009**, *54*, 191–198. [CrossRef] [PubMed]

16. Shensa, A.; Escobar-Viera, C.G.; Sidani, J.E.; Bowman, N.D.; Marshal, M.P.; Primack, B.A. Problematic social media use and depressive symptoms among U.S. young adults: A nationally-representative study. *Soc. Sci. Med.* **2017**, *182*, 150–157. [CrossRef] [PubMed]
17. Healthy Minds Network. National Report 2022–2023. Available online: https://healthymindsnetwork.org/wp-content/uploads/2023/08/HMS_National-Report-2022-2023_full.pdf (accessed on 5 January 2026).
18. Bennett, J.; Greene, G.; Schwartz-Barcott, D. Perceptions of emotional eating behavior. A qualitative study of college students. *Appetite* **2013**, *60*, 187–192. [CrossRef] [PubMed]
19. Dalton, E.D. Emotional Eating in College Students: Associations with Coping and Healthy Eating Motivators and Barriers. *Int. J. Behav. Med.* **2024**, *31*, 563–572. [CrossRef] [PubMed]
20. Lazarevich, I.; Irigoyen Camacho, M.E.; Velázquez-Alva, M.D.C.; Zepeda Zepeda, M. Relationship among obesity, depression, and emotional eating in young adults. *Appetite* **2016**, *107*, 639–644. [CrossRef] [PubMed]
21. Lazarevich, I.; Irigoyen Camacho, M.E.; Velázquez-Alva, M.C.; Flores, N.L.; Nájera Medina, O.; Zepeda Zepeda, M.A. Depression and food consumption in Mexican college students. *Nutr. Hosp.* **2018**, *35*, 620–626. [CrossRef] [PubMed]
22. Sultson, H.; Akkermann, K. Investigating phenotypes of emotional eating based on weight categories: A latent profile analysis. *Int. J. Eat. Disord.* **2019**, *52*, 1024–1034. [CrossRef] [PubMed]
23. Tuluhong, M.; Han, P. Chronic stress is associated with reward and emotion-related eating behaviors in college students. *Front. Nutr.* **2023**, *9*, 1025953. [CrossRef] [PubMed]
24. Fuente González, C.E.; Chávez-Servín, J.L.; de la Torre-Carbot, K.; Ronquillo González, D.; Aguilera Barreiro, M.L.Á.; Ojeda Navarro, L.R. Relationship between Emotional Eating, Consumption of Hyperpalatable Energy-Dense Foods, and Indicators of Nutritional Status: A Systematic Review. *J. Obes.* **2022**, *2022*, 4243868. [CrossRef] [PubMed]
25. Macht, M. How emotions affect eating: A five-way model. *Appetite* **2008**, *50*, 1–11. [CrossRef] [PubMed]
26. Oliver, G.; Wardle, J.; Gibson, E.L. Stress and food choice: A laboratory study. *Psychosom. Med.* **2000**, *62*, 853–865. [CrossRef] [PubMed]
27. Ejtahed, H.S.; Mardi, P.; Hejrani, B.; Mahdavi, F.S.; Ghoreschi, B.; Gohari, K.; Heidari-Beni, M.; Qorbani, M. Association between junk food consumption and mental health problems in adults: A systematic review and meta-analysis. *BMC Psychiatry* **2024**, *24*, 438. [CrossRef] [PubMed]
28. Zhang, Z.; Jackson, S.L.; Martinez, E.; Gillespie, C.; Yang, Q. Association between ultraprocessed food intake and cardiovascular health in US adults: A cross-sectional analysis of the NHANES 2011–2016. *Am. J. Clin. Nutr.* **2021**, *113*, 428–436. [CrossRef] [PubMed]
29. Harmon-Jones, C.; Bastian, B.; Harmon-Jones, E. The Discrete Emotions Questionnaire: A New Tool for Measuring State Self-Reported Emotions. *PLoS ONE* **2016**, *11*, e0159915. [CrossRef] [PubMed]
30. Zupan, B.; Eskritt, M. Eliciting emotion ratings for a set of film clips: A preliminary archive for emotion research. *J. Soc. Psychol.* **2020**, *160*, 768–789. [CrossRef] [PubMed]
31. My Sister’s Keeper: Kate Dies. 2009. Available online: <https://www.youtube.com/watch?v=HNVtkURGb1k> (accessed on 19 July 2026).
32. Soul Surfer: Bethany Rides a Tube. 2011. Available online: <https://youtu.be/Es6pZbe6vIM?si=mHjLe7i1w0fUcO6g&t=54> (accessed on 15 May 2024).
33. Cast Away. Plane Crash. 2000. Available online: <https://youtu.be/PCK2GrCpuqY?si=UHneYFJ41xvFGG40&t=129> (accessed on 15 May 2024).
34. Simple Pillowcase. 2017. Available online: <https://youtu.be/A6LbkclCsw> (accessed on 15 May 2024).
35. Hewig, J.; Hagemann, D.; Seifert, J.; Gollwitzer, M.; Naumann, E.; Bartussek, D. Revised film set for the induction of basic emotions. *Cogn. Emot.* **2005**, *19*, 1095–1109. [CrossRef]
36. Salas, C.E.; Radovic, D.; Turnbull, O.H. Inside-out: Comparing internally generated and externally generated basic emotions. *Emotion* **2012**, *12*, 568–578. [CrossRef] [PubMed]
37. Kandiah, J.; Yake, M.; Jones, J.; Meyer, M. Stress influences appetite and comfort food preferences in college women. *Nutr. Res.* **2006**, *26*, 118–123. [CrossRef]
38. Willner, P.; Benton, D.; Brown, E.; Cheeta, S.; Davies, G.; Morgan, J.; Morgan, M. “Depression” increases “craving” for sweet rewards in animal and human models of depression and craving. *Psychopharmacology* **1998**, *136*, 272–283. [CrossRef] [PubMed]
39. van Strien, T.; Cebolla, A.; Etchemendy, E.; Gutiérrez-Maldonado, J.; Ferrer-García, M.; Botella, C.; Baños, R. Emotional eating and food intake after sadness and joy. *Appetite* **2013**, *66*, 20–25. [CrossRef] [PubMed]
40. CDC. Adult BMI Categories. 2024. Available online: <https://www.cdc.gov/bmi/adult-calculator/bmi-categories.html> (accessed on 5 January 2026).
41. Statista. Video streaming in the United States. 2024. Available online: <https://www.statista.com/topics/11015/video-streaming-in-the-united-states> (accessed on 8 April 2026).

42. Health Minds Network, The Healthy Minds Study 2024–2025 Data Report. 2025. Available online: https://healthymindsnetwork.org/wp-content/uploads/2025/09/2024-2025_HMS-National-Data-Report_Student.pdf (accessed on 7 June 2026).
43. Trellis Strategies. Invisible on Campus: The Student Loneliness Crisis. 2026. Available online: https://www.trellisstrategies.org/wp-content/uploads/2026/02/Research-Brief_TSFE26_Loneliness.pdf (accessed on 7 June 2026).
44. Hall, K.D.; Ayuketah, A.; Brychta, R.; Cai, H.; Cassimatis, T.; Chen, K.Y.; Chung, S.T.; Costa, E.; Courville, A.; Darcey, V.; et al. Ultra-Processed Diets Cause Excess Calorie Intake and Weight Gain: An Inpatient Randomized Controlled Trial of Ad Libitum Food Intake. *Cell Metab.* **2019**, *30*, 67–77.e3. [[CrossRef](#)] [[PubMed](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.