Korean Journal of Clinical Psychology
2025. Vol. 44, No. 1, 1-12
OPEN ACCESS

Original Article

https://doi.org/10.15842/kjcp.2025.44.1.001
eISSN 2733-4538

Technology Addiction in Young Adults: The Roles of Subjective Socioeconomic Status, Relative Deprivation, and Shame

Kyeongwoo Park Hyein Chang†

Department of Psychology, Sungkyunkwan University, Seoul, Korea

Perceptions of one's socioeconomic condition are associated with subjective socioeconomic status (SSS) and relative deprivation (RD). SSS involves comparing oneself to society, whereas RD entails comparison with others who are similar and includes an emotional component. We examined the role of SSS and RD in three technology addiction subtypes (i.e., video games, pornography, and online gambling) and determined the mediating role of shame. A total of 657 Korean young adults aged 19-34 years participated (51.0% women). RD showed significant positive associations with all technology addiction subtypes, whereas SSS showed no significant associations. Shame significantly mediated the associations of SSS and RD with technology addiction subtypes. Lower SSS and higher RD were associated with higher shame levels, which were related to severe technology addiction. Socioeconomic perceptions and emotions have intertwined roles in pathways to technology addiction. Therefore, a multifaceted approach is required to ensure effective prevention and intervention.

Keywords: subjective socioeconomic status, relative deprivation, shame, video game addiction, pornography addiction, online gambling addiction

Introduction

Among young adults, the uncontrolled and problematic use of video games, pornography, and online gambling is of particular concern due to its potentially harmful consequences in daily functioning (e.g., interpersonal relationships), posing risks for significant socioeconomic and psychological damage to individuals and society as a whole (Achab et al., 2011; Gainsbury, 2015). These problematic behaviors may fall within the spectrum of behavioral addiction (Griffiths & Kuss, 2015). Although there is still an ongoing debate as to whether behavioral addiction can be viewed in line with addiction to substances such as alcohol (Sassover & Weinstein, 2020), its phenomenological aspects resemble those of substance use disorders (e.g., salience, conflict, and relapse) (Griffiths, 2005). In addition, several previous studies have shown that the chronicity of these behaviors involves neurological changes similar to those observed in substance use disorders (Dong et al., 2015).

Video games, pornography, and online gambling are heterogeneous in their specific characteristics and behavioral patterns (Rozgonjuk et al., 2023). Nevertheless, they can be collectively classified as forms of "technology addiction" due to their common reliance on information technology and shared psychosocial risk factors (Akbari et al., 2023; Tarafdar et al., 2020). This classification suggests a heightened likelihood of cross-addiction among these subtypes, where one form of addiction may substitute for or co-occur with another in the same individual—a phenomenon com-

†Correspondence to Hyein Chang, Department of Psychology, Sungkyunkwan University, 25-2 Sungkyunkwan-ro, Jongno-gu, Seoul 03064, Korea; E-mail: hichang@skku.edu

Received Jul 14, 2024; Revised Nov 11, 2024; Accepted Dec 16, 2024

This study was supported by the ASAN Foundation.
Kyeongwoo Park has received his Ph.D. and is now a research fellow at the Institute of Applied Psychology, Sungkyunkwan University.

monly observed in addictive disorders (McFadden, 2010). Therefore, addressing the shared risk mechanisms underlying technology addiction may enable more cost-effective and comprehensive intervention strategies.

One potential risk mechanism may involve factors related to individuals' socioeconomic status. Recent research has emphasized the importance of subjective perceptions or emotional responses related to socioeconomic disparities (Tan et al., 2020). Subjective socioeconomic status (SSS) refers to individuals' perception of their status within a societal structure, rather than merely focusing on one's actual economic or social resources (Adler et al., 2000). It has been suggested to be a better predictor of addiction than objective socioeconomic status indicators (Assari et al., 2019), and may also be an important risk factor for technology addiction as well (Lin & Liu, 2020). Previous studies have indicated that low SSS is positively related to delayed discounting, reflecting biased behavioral patterns that focus on short-term and immediate rewards (Ishii, 2015). Furthermore, it may result in negative emotional experiences that manifest as increased depressive symptoms and cortisol levels (Hoebel et al., 2017; Wright & Steptoe, 2005). These negative emotional experiences and behavioral patterns are risk factors for dysfunctional Internet use (Akbari et al., 2023; Negash et al., 2016).

Relative deprivation (RD) is another factor associated with socioeconomic status; however, unlike SSS, RD refers to subjective perceptions of the socioeconomic gap compared to similar others (i.e., not the entire society) and includes emotional reactions, such as dissatisfaction or resentment, resulting from it (Smith et al., 2012). Thus, RD is a construct that blends cognitive perception and emotional response, and is experienced within a close social and cultural context, suggesting that even individuals from groups with high objective or subjective socioeconomic status can experience intense RD (Callan et al., 2017). Similar to SSS, RD may relate to risk-taking attitudes and behaviors, including gambling, crime, and other non-normative activities (Keshavarz et al., 2021; Mishra & Novakowski, 2016), including increased tendency for delay discounting (Callan et al., 2011). Additionally, a recent study showed a potential link between higher RD and lower self-improvement motivation (Zheng et al., 2023). This finding suggests that individuals with higher RD may resort to maladaptive coping mechanisms such as addiction instead of pursuing constructive self-improvement. Thus, RD's psychological and emotional repercussions can contribute to a risk of addictive behaviors, such as gambling (Callan et al., 2011; Elgar et al., 2018). Research on the relationship between RD and technology addiction is limited, but studies have suggested a possible association of RD with compulsive behaviors on the Internet (Lin & Liu, 2020; Qian et al., 2018).

Although SSS and RD partly overlap, their unique characteristics may provide distinct insights into how individuals perceive and react to socioeconomic situations. Moreover, both can help us to better understand the intrapersonal responses stemming from these perceptions, such as negative emotions, which may contribute to a heightened risk for addictive behaviors. However, few studies have compared the relative contributions of SSS and RD to mental health. In an exceptional study, RD was found to be a stronger predictor of mental health outcomes, such as depression, than SSS (Callan et al., 2015). More importantly, RD showed a higher correlation with smartphone addiction among adolescents than SSS and was suggested to be a more proximal predictor than SSS (Lin & Liu, 2020). In the above studies, the correlation between SSS and RD ranged from -.13 to -.66 (Callan et al., 2015; Lin & Liu, 2020), suggesting that the two are related but distinct constructs, and supporting the possibility that RD may be a more salient predictor of technology addiction. This is likely because RD involves social comparisons with psychologically close or similar individuals, leading to negative emotional responses stemming from perceived gaps (Smith et al., 2012). Given these specific social comparisons and the resulting emotional distress, individuals with high RD are more likely to adopt avoidance strategies rather than directly confront their immediate environment. However, empirical evidence on the comparative effects of SSS and RD is still limited.

Additionally, we focused on the potential role of shame as a mediator to elucidate the mechanisms by which SSS and RD are related to technology addiction. Shame is a painful emotion arising from comprehensive and negative self-assessments (Tangney & Dearing, 2003). Within the framework of socioeconomic disparities, having low SSS or high RD may intensify shame by threatening the social self (Dickerson et al., 2004; Wilkinson, 2001), especially if individuals attribute these perceived disparities to their shortcomings. Technology use motivated by the desire to escape from one's real self or avoid painful emotions may lead to addic-

https://doi.org/10.15842/kjcp.2025.44.1.001

tion (Melodia et al., 2022). In this context, the shame underlying these motivations has been suggested as an essential risk factor for various addictive behaviors (e.g., Chisholm & Gall, 2015). More specifically, shame can trigger technology use rooted in escape and avoidance motivations by inducing significant distress and stifling individuals' hope for self-improvement and sense of accountability (Chisholm & Gall, 2015; Tangney et al., 1992). In the context of low SSS and high RD, individuals may experience increased shame owing to perceived social failure, prompting them to seek relief through online activities. For young adults who have grown up with the Internet as a staple in their daily lives, these virtual spaces often offer accessible and seemingly safe refuge from shame (Kardefelt-Winther, 2014).

This study aimed to investigate the effects of SSS and RD on technology addiction, and understand how shame may serve as an underlying mechanism in this relationship. As mentioned, it has been suggested that SSS may have an indirect effect on technology addiction as a distal factor through RD (Lin & Liu, 2020). Conversely, some researchers argue that individuals who experience high RD may report lower SSS (Kuo & Chen, 2023). Thus, although SSS (which assesses one's relative position within the broader social hierarchy) and RD (which reflects comparisons with similar others and the associated emotional responses) are conceptually distinct constructs (Callan et al., 2015; Smith et al., 2012), they may influence each other. With this in mind, we focused on examining the independent effects of each variable while accounting for their covariance, as reflected in the following hypotheses:

H1. Lower SSS and higher RD would be associated with higher levels of technology addiction (i.e., gaming, pornography, and gambling) among young adults.

H2. Shame would mediate the relationships between SSS, RD, and technology addiction. Specifically, lower SSS and higher RD would be associated with higher levels of shame, which in turn would be associated with higher levels of technology addiction.

Methods

Participants and Procedures

Participants were 657 Korean adults between the ages of 19 and 34 years, recruited from a pool of adult panels registered with an online survey company (334 women, $M_{age} = 27.19$, $SD_{age} = 4.34$). Of the participants, 57.6% reported a monthly average household income within KRW 2,000,000-6,000,000. Regarding education, 44.7% were university graduates, 22.5% had attended university, and 11.6% were junior college graduates. We employed an anonymous survey method to minimize potential response bias (Alexander & Fisher, 2003). The study was preregistered in the Open Science Framework (OSF) prior to analysis (DOI: 10.17605/OSF.IO/SZDHW), with minor deviations from the preregistered design to better address the study aims.

Measures

Addictive video game use. The Clinical Video Game Addiction Test 2.0 (C-VAT 2.0, 11 items) was used to measure the severity of addictive video game use (Jang et al., 2020; Van Rooij et al., 2017). Originally developed as a clinician-administered tool, this scale was later validated in Korea as a self-report measure, demonstrating reliability and validity in capturing gaming addiction severity in Korean young adults (Jang et al., 2020). In our study, participants responded to binary items (1 = "yes," 0 = "no") based on experiences in the past six months, modified from the original reference period of one year to maintain consistency across technology addiction measures. While the previous study of this scale did not report an internal consistency coefficient (Jang et al., 2020), the Cronbach's alpha in our study was .83.

Addictive pornography use. The Problematic Pornography Consumption Scale (PPCS, 18 items) assessed addictive pornography use severity based on the respondents' experiences over six months (Bőthe et al., 2018). Each item is rated on a seven-point Likert scale (1 = "never," 7 = "all the time"). PPCS has been validated with good internal consistency (Cronbach's $\alpha = .95$) (Bőthe et al., 2024). In this study, the Cronbach's Alpha value was .97.

Addictive online gambling. The Canadian Problem Gaming Index (CPGI, 9 items) is a widely used self-report measure for gambling addiction (Ferris & Wynne, 2001; Kim et al., 2011). Participants rate each item on a four-point Likert scale (0 = "never," 3 = "almost always"), with higher scores indicating severe addiction. In the present study, while maintaining the basic structure of the scale, the term "gambling" for all items was modified to "online

gambling" and the reference period was revised to six months. Cronbach's Alpha was found to be .75 in a previous study (Kim et al., 2011) and .86 in the current study.

Subjective socioeconomic status. The SSS was measured using the MacArthur Ladder Scale, a widely used single-item questionnaire (Adler et al., 2000). Participants were asked to choose the step on a ladder depicted visually (ranging from 1 to 10) that best reflected their socioeconomic status. The chosen step was then converted to a corresponding score (e.g., selecting the 3rd step would score three points), with higher scores indicating higher subjective socioeconomic status.

Relative deprivation. RD was measured using the Korean version of the Personal Relative Deprivation Scale (PRDS, 3 items), a partial modification of the original scale (Callan et al., 2011; Kim et al., 2018). The items in the Korean version of the PRDS are rated on six-point Likert scale (1 = "strongly disagree," 6 = "strongly agree"). Cronbach's Alpha was found to be .75 in a previous study (Kim et al., 2018) and .86 in the current study.

Shame. The Internalized Shame Scale (ISS, 24 items) was used to measure the level of shame (Cook, 1988). Each item is rated on a five-point Likert scale (1 = "never," 5 = "almost always"), with higher scores indicating greater internalized shame. The Korean version of the ISS has been shown to have good internal consistency, with a Cronbach's alpha of .93 in a previous study (Lee & Choi, 2005) and .98 in our study.

Statistical Analysis

Following preliminary analyses, two structural equation models were designed to test the study hypotheses using the maximum likelihood (ML) method in Mplus 8.8. The first model examined the relationship of SSS and RD with technology addiction and compared their path coefficients. A mediation model was then tested in which SSS and RD led to technology addiction subtypes via shame. SSS was included as an observation variable (measured with a single item), and RD was a latent variable using three individual items as indicators. Shame was a latent variable using four subfactors as indicators (Lee & Choi, 2005). Addictive video game use, pornography use, and online gambling were treated as individual variables considering their unique symptom clusters identified in a previous study (Rozgonjuk et al., 2023). The sum of all items of each technology addiction scale was included in the models as observation variables instead of constructing latent variables, as the factor structure of the modified scales has not been validated. Further, the total scores are meaningful in measuring the severity of each addiction subtype. Sex was included in both models as a covariate based on the finding that men are relatively vulnerable to technology addiction (Dong & Potenza, 2022; Grubbs et al., 2019; McCormack et al., 2014). Additionally, objective socioeconomic status indicators (i.e., household income and education levels) were considered covariates for a more rigorous test of the subjective perception of socioeconomic status and related experiences. Model fit was tested based on χ^2 statistics, comparative fit index (CFI), Tucker-Lewis index (TLI), standardized root mean residual (SRMR), and root mean square error of approximation (RMSEA). The CFI and TLI were considered to have a good fit when their significance was higher than .90. The SRMR and RMSEA were considered a reasonably good fit under .08 and close fit under .05 (MacCallum et al., 1996; McDonald & Ho, 2002). Indirect associations were examined using the bootstrap method with 1,000 resamples and bias-corrected 95% confidence intervals (CIs) (Yoon et al. 2021).

Ethics

The Institutional Review Board (IRB) of the affiliated university (IRB no. SKKU 2022-09-033-001) approved this study. The study procedures adhered to the ethical standards. Moreover, the participants were informed about the study's nature and their consent was obtained for data utilization.

Results

Descriptive Statistics and Bivariate Correlations

Table 1 presents descriptive statistics and bivariate correlations. The three technology addiction subtypes showed significant positive correlations with one another. SSS had a significant negative correlation with RD, but showed non-significant correlation with technology addiction. RD was significantly and positively correlated with all technology addiction subtypes. SSS and RD significantly correlated with shame. Shame, in turn, was positively correlated with all addiction subtypes. Education and income posi-

https://doi.org/10.15842/kjcp.2025.44.1.001

Table 1. *Descriptive Statistics and Bivariate Correlations*

Variables	1	2	3	4	5	6	7	8	9
1. Sex (Men)	-								
2. Income	-.003	-							
3. Education	-.111**	.025	-						
4. SSS	-.011	.185***	.175***	-					
5. RD	-.053	-.024	-.068†	-.285***	-				
6. Shame	.009	-.010	-.171***	-.337***	.552***	-			
7. Video game addiction	.171***	-.065†	-.140***	-.053	.183***	.296***	-		
8. Pornography addiction	.414***	-.039	-.133***	-.068†	.249***	.341***	.461***	-	
9. Online gambling addiction	.261***	.073†	-.136***	-.011	.143***	.279***	.439***	.540***	-
Mean	-	6.13	5.16	4.71	9.84	26.89	1.48	30.83	1.53
SD	-	7.31	1.46	1.73	3.56	22.65	2.27	19.26	4.53

Income = monthly household income (million won); SSS = subjective socioeconomic status; RD = relative deprivation.
*†p < .1, **p < .01, ***p < .001.*

Table 2. *Model Fit Indices for Structural Equation Models*

Model	χ^2 (*df*)	CFI	TLI	RMSEA [90% CI]	SRMR	R^2
Non-mediated model	71.552 (20)	.968	.938	.063 [.047, .079]	.043	.088*, .268†, .117‡
Mediation model	235.381 (57)	.962	.944	.069 [.060, .078]	.047	.131*, .309†, .160‡

N = 657.
CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean residual.
*R^2: *video game addiction, †pornography addiction, ‡online gambling addiction.*

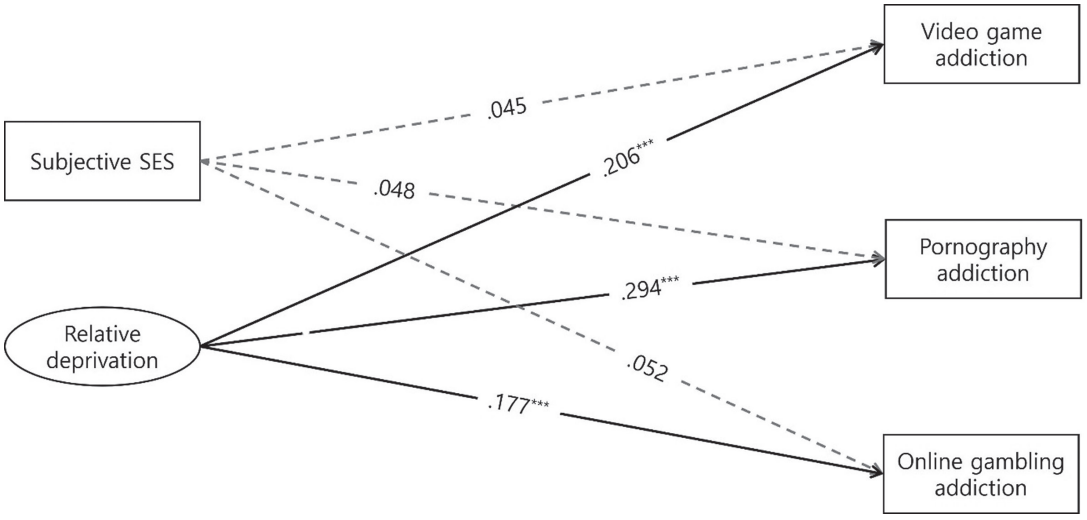

Figure 1. *Relationship between subjective socioeconomic status (SSS), relative deprivation (RD) and technology addiction.*
Presented values are standardized coefficients. Covariates in the model include sex, income, and education. Solid lines indicate statistically significant paths, while dashed lines indicate non-significant paths.
****p < .001.*

tively correlated with SSS, but not RD. Education negatively correlated with addiction subtypes, whereas income showed no significant correlation with addiction. Finally, sex significantly correlated with addiction subtypes.

Relationship between Subjective Socioeconomic Status, Relative Deprivation, and Technology Addiction Subtypes

Table 2 presents the results of a structural equation model incorporating SSS and RD in relation to the three technology addiction

subtypes. The model exhibited an adequate fit. As presented in Figure 1, SSS did not show a significant relationship with any of the technology addiction subtypes. In contrast, RD exhibited a significant and positive relationship with all subtypes of technology addiction. This model explained 8.8%, 26.8%, and 11.7% variances in video game addiction ($R^2 = .088$, $p = .001$), pornography addiction ($R^2 = .268$, $p < .001$), and online gambling addiction ($R^2 = .117$, $p < .001$), respectively.

Mediating Role of Shame in the Relationship between Socioeconomic Perceptions (Subjective Socioeconomic Status and Relative Deprivation) and Technology Addiction

As presented in Table 2, the model that included shame as a mediator in the association of SSS and RD with technology addiction exhibited adequate fit. After controlling for the effects of income, education, and sex, the results showed that shame significantly mediated the association of SSS and RD with technology addiction (Figure 2). Specifically, SSS was negatively associated with shame, whereas RD was positively associated with shame. Shame, in turn, was significantly and positively related to all three technology addiction subtypes. Furthermore, this model explained 13.1%, 30.0%, and 16.0% variances in video game addiction ($R^2 = .131$, $p < .001$), pornography addiction ($R^2 = .309$, $p < .001$), and online gambling addiction ($R^2 = .160$, $p < .001$), respectively.

Table 3 presents the results of the indirect effects analyzed using bootstrapping methods, a robust approach for assessing media-

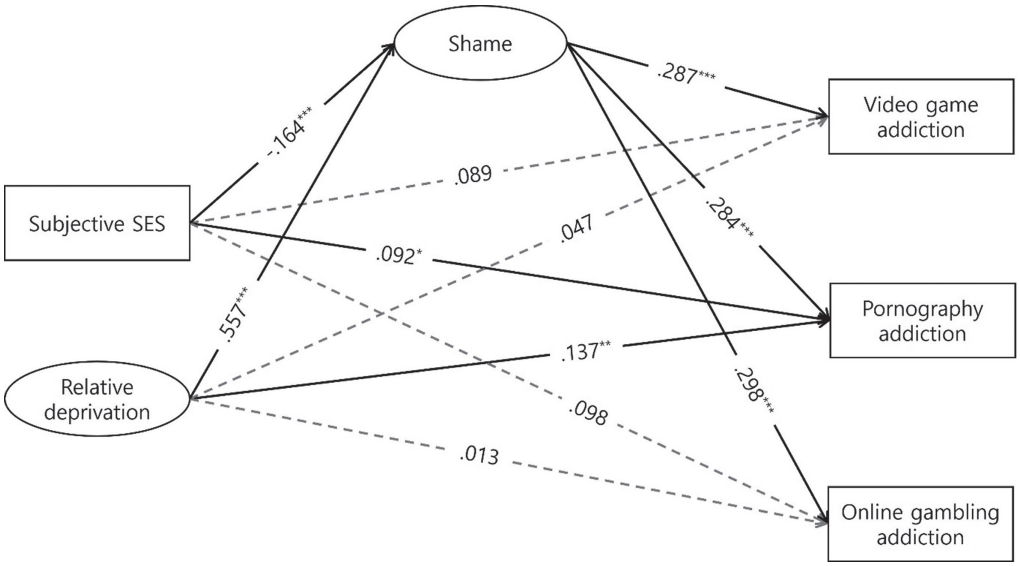

Figure 2. *Mediating role of shame in the relationship between subjective socioeconomic status (SSS), relative deprivation (RD), and technology addiction.*
Presented values are standardized coefficients. Covariates in the model include gender, income, and education. Solid lines represent statistically significant paths, while dashed lines represent non-significant paths.
**p < .05, **p < .01, ***p < .001.*

Table 3. *Results of Indirect Associations Analysis Using Bias-Corrected Bootstrapping*

Pathway	β	SE	*p* value	LLCI	ULCI
SSS → Shame → Video game addiction	-.047	.014	.001	-.077	-.023
SSS → Shame → Pornography addiction	-.047	.013	< .001	-.072	-.022
SSS → Shame → Online gambling addiction	-.049	.014	< .001	-.072	-.023
RD → Shame → Video game addiction	.160	.033	< .001	.095	.225
RD → Shame → Pornography addiction	.158	.031	< .001	.097	.220
RD → Shame → Online gambling addiction	.166	.033	< .001	.107	.235

N = 657.
SSS = subjective socioeconomic status; RD = relative deprivation; LLCI = lower limit of 95% confidence interval; ULCI = upper limit of 95% confidence interval.

https://doi.org/10.15842/kjcp.2025.44.1.001

tion effects (Preacher & Hayes, 2008). RD was associated with all three technology addiction subtypes through its association with shame. Conversely, SSS showed indirect negative associations with all technology addiction subtypes through its negative association with shame. In addition, when the indirect association of shame was controlled, SSS still showed a significant direct association with pornography addiction. The positive association between RD and pornography addiction remained significant even after controlling for the indirect association via shame. In contrast, its associations with video game addiction and online gambling addiction were insignificant.

Discussion

This study aimed to elucidate the mechanisms underlying the three variants of technology addiction—gaming, pornography use, and gambling—by examining the contributions of SSS and RD, factors related to socioeconomic perception, and the mediating role of shame. Data from 657 young adults in Korea were analyzed using structural equation modeling, accounting for the effects of objective socioeconomic status (i.e., income and education) and sex.

Our findings showed that RD, but not SSS, was positively associated with all forms of technology addiction. This is consistent with previous research that recognized RD as a stronger predictor of mental health problems than the SSS (Callan et al., 2015). This finding underscores the need for a more nuanced understanding of the different indicators of socioeconomic perceptions and their effects on psychological health. Although the underlying reason remains unclear, it may be attributable to the closer psychological proximity to the reference group in RD compared to SSS and the incorporation of emotional responses in RD, a component that is absent in SSS (Smith et al., 2012). No significant associations were found between SSS and technology addiction, contrary to the findings of a previous study that showed that both RD and SSS predicted smartphone addiction (Lin & Liu, 2020). This may be due to differences between addiction subtypes and further suggests that the effect of SSS may depend on sample characteristics. In the aforementioned study, adolescents were recruited from a single school (Lin & Liu, 2020). Therefore, low SSS may reflect a perceived disadvantage among potential competitors. We expect that as the homogeneity among participants decreases, the effect of SSS may weaken. Alternatively, age could be a potential factor to consider, such that younger adults in the present study may perceive a greater likelihood of positive change in their future than older individuals (Durbin et al., 2019). Thus, they may value the comparative advantages of their age cohort or close peers over their current SSS.

When shame was incorporated into the model, the associations of SSS and RD with technology addiction became more pronounced. This suggests that individuals who perceive themselves as being lower in the socioeconomic hierarchy may experience heightened shame, which increases their risk of developing various technology addiction. Regarding RD and technology addiction subtypes, shame was found to fully (for online gaming and gambling) or partially (for pornography) mediate their associations. Our findings stress the importance of shame as a "key affective response to social-evaluative threats (Dickerson et al., 2004)." These findings are consistent with evidence highlighting the triggering effects of self-critical thoughts and emotions on addictive behaviors, such as excessive gaming or gambling (Castro-Calvo et al., 2022; Pascual-Leone et al., 2011). Shame may be a link connecting the negative perception of an individual's societal position to maladaptive behaviors, such as technology addiction.

However, some of the findings require further investigation. When shame was included in the model, SSS had a direct positive association with pornography addiction. These findings were unexpected, given the previous finding that lower SSS is associated with increased vulnerability to addiction (Assari et al., 2019). Interestingly, some previous studies have suggested that high SSS may increase susceptibility to mental health problems in specific contexts. For example, individuals with higher SSS may have more difficulty in coping with stress than others when they receive more social support because they perceive the support as a challenge to their autonomy and self-reliance (Hooker et al., 2020). This finding suggests that both high and low SSS may be uniquely associated with the development of pornography addiction through different pathways. Specifically, low SSS may be linked to pornography addiction through emotional distress or myopic decision-making (Hoebel et al., 2017; Ishii, 2015), whereas high SSS

could increase pornography addiction susceptibility by increasing individuals' vulnerability to stress because of an inflated ego or high pressure for social achievement (Luthar & Becker, 2002; Piff, 2014). Alternatively, our findings may be based on a suppression effect, wherein the inclusion of shame in the model altered the observed relationship between SSS and pornography addiction (Paulhus et al., 2004).

Another notable finding is the partial mediating role of shame in the relationship between RD and pornography addiction. This may be due to the different characteristics of technology addiction subtypes. The hallmark of gambling and many online games is their uncertain and variable outcomes, requiring payment to participate in the activity or to increase the possibility of achieving a positive outcome (e.g., winning, prizes) (Steinmetz et al., 2022). Even if participants are willing to pay, rewards are not guaranteed and often depend on chance or skill (Deterding et al., 2022; King et al., 2010). In contrast, pornography is freely available on many websites (Morichetta et al., 2021) and provides consistent and predictable rewards for sexual gratification (Cooper, 1998). In addition to shame, RD is associated with various negative affective states such as depression or stress (Callan et al., 2015). Considering that shame could increase the risk of self-destructive behaviors (Cassiello-Robbins et al., 2019), if the negative affective state caused by RD does not include a self-critical component, individuals may prefer to cope through safer means rather than risk greater loss and failure. In this context, pornography may be the preferred coping strategy for those experiencing emotional problems other than shame due to RD. This may explain why the direct association of RD, unmediated by shame, remained significant. This possibility is also indirectly supported by the finding that our model explained the highest variance for pornography addiction.

Our findings have various theoretical and clinical implications regarding technology addiction. By identifying the associations between SSS, RD, shame, and technology addiction, our findings extend the theoretical understanding of the psychological mechanisms underlying addictive behaviors, particularly in the context of individuals' subjective perceptions of their socioeconomic situation. Our findings suggest that focusing on RD rather than SSS may be useful for understanding technology addiction among young adults. Additionally, an integrated approach that includes shame may clarify the pathways through which high RD is related to technology addiction and provide information about the context in which low SSS acts as a risk factor. Our findings may inform future interventions and preventive efforts. For instance, cognitive behavioral therapy (CBT) and self-compassion training can specifically target shame and other emotional responses to RD and SSS among individuals at risk of developing technology addiction. By promoting positive attitudes toward oneself and adaptive coping strategies, these interventions may help to address the influence of socioeconomic perceptions on technology addiction (Ferrari et al., 2019; Stevens et al., 2019). Furthermore, our findings call for societal and cultural changes to address SSS and RD. Policies to reduce income inequality, promote social mobility, and ensure an equitable distribution of wealth, including education to prevent excessive social comparison, can mitigate feelings of socioeconomic disparity and subsequent shame that contributes to technology addiction. This underscores the need for a multifaceted approach to address technology addiction with strategies ranging from individual interventions to broader societal reforms.

This study has some limitations. Our sample was limited to young adults in Korea, which may restrict the generalizability of our findings to other populations. Additionally, while self-report measures enabled comprehensive data collection and access to participants' subjective perceptions, they may have been prone to social desirability and recall bias. Finally, using a cross-sectional design, this study cannot infer causality. Although our model was based on a thorough review of the existing literature, few studies have also suggested other possible directionality of influence between variables (e.g., De Jong & Cook, 2021). Therefore, our findings should be interpreted with caution.

Several promising topics for future studies remain. We focused on examining the independent effects of SSS and RD as predictors of technology addiction. However, some studies suggest that individuals with low SSS may be more likely to experience RD (Lin & Liu, 2020; Yoo et al., 2019), whereas others propose that high RD can lead individuals to report lower SSS (Kuo & Chen, 2023). These findings imply that the pathways linking SSS, RD, shame, and technology addiction may be diverse. Identifying these pathways in future studies could greatly enhance intervention strategies by providing a richer array of options for addressing technol-

https://doi.org/10.15842/kjcp.2025.44.1.001

ogy addiction. Given that the relationships among the variables examined in this study varied across subtypes of technology addiction, it would also be valuable to explore potential moderators that may account for these differences. Furthermore, future studies should seek to replicate our findings with other potential subtypes of technology addiction (e.g., social media addiction) (Sun & Zhang, 2021) while also considering various psychological factors, such as attributional style (Shaghaghy et al., 2011), that may influence these behaviors.

In conclusion, this study underscores the need to consider socioeconomic perceptions and the painful emotions that result from them, such as shame, when understanding and treating technology addiction. Our insights into the associations of SSS and RD in addictive behaviors may lay the groundwork for developing focused interventions and fostering a healthy society. Exploring these dynamics expands our understanding of technology addiction and highlights broader questions regarding the interplay between socioeconomic factors, emotional responses, and mental health. This contributes to an evolving field of research with crucial implications for individual and societal well-being.

Author contributions statement

Kyeongwoo Park, Ph.D. Student at Sungkyunkwan University, conceptualized the study, conducted the investigation, performed the formal analysis, and led the original draft writing and project administration. Hyein Chang, Professor at Sungkyunkwan University, acquired the funding, supervised the research process, conducted data analysis, and participated in writing, review, and editing of the manuscript.

References

Achab, S., Nicolier, M., Mauny, F., Monnin, J., Trojak, B., Vandel, P., Sechter, D., Gorwood, P., & Haffen, E. (2011). Massively multiplayer online role-playing games: Comparing characteristics of addict vs non-addict online recruited gamers in a French adult population. *BMC Psychiatry, 11*, 144. https://doi.org/10.1186/1471-244X-11-144

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19,* 586-592. https://doi.org/10.1037//0278-6133.19.6.586

Akbari, M., Bahadori, M. H., Khanbabaei, S., Milan, B. B., Horvath, Z., Griffiths, M. D., & Demetrovics, Z. (2023). Psychological predictors of the co-occurrence of problematic gaming, gambling, and social media use among adolescents. *Computers in Human Behavior, 140,* 107589. https://doi.org/10.1016/j.chb.2022.107589

Alexander, M. G., & Fisher, T. D. (2003). Truth and consequences: Using the bogus pipeline to examine sex differences in self-reported sexuality. *Journal of Sex Research, 40*, 27-35. https://doi.org/10.1080/00224490309552164

Assari, S., Smith, J., Mistry, R., Farokhnia, M., & Bazargan, M. (2019). Substance use among economically disadvantaged African American older adults; objective and subjective socioeconomic status. *International Journal of Environmental Research and Public Health, 16,* 1826. https://doi.org/10.3390/ijerph16101826

Bőthe, B., Tóth-Király, I., Zsila, Á., Griffiths, M. D., Demetrovics, Z., & Orosz, G. (2018). The development of the problematic pornography consumption scale (PPCS). *Journal of Sex Research, 55*, 395-406. https://doi.org/10.1080/00224499.2017.1291798

Bőthe, B., Nagy, L., Koos, M., Demetrovics, Z., Potenza, M. N., International Sex Survey Consortium, ... & Van Hout, M. C. (2024). Problematic pornography use across countries, genders, and sexual orientations: Insights from the International Sex Survey and comparison of different assessment tools. *Addiction, 119,* 928-950. https://doi.org/10.1111/add.16431

Callan, M. J., Kim, H., Gheorghiu, A. I., & Matthews, W. J. (2017). The interrelations between social class, personal relative deprivation, and prosociality. *Social Psychological and Personality Science, 8,* 660-669. https://doi.org/10.1177/1948550616673877

Callan, M. J., Kim, H., & Matthews, W. J. (2015). Predicting self-rated mental and physical health: The contributions of subjective socioeconomic status and personal relative deprivation. *Frontiers in Psychology, 6,* 1415. https://doi.org/10.3389/fpsyg.2015.01415

Callan, M. J., Shead, N. W., & Olson, J. M. (2011). Personal relative deprivation, delay discounting, and gambling. *Journal of Personality and Social Psychology, 101*, 955-973. https://doi.org/10.1037/a0024778

Cassiello-Robbins, C., Wilner, J. G., Peters, J. R., Bentley, K. H., & Sauer-Zavala, S. (2019). Elucidating the relationships between shame, anger, and self-destructive behaviors: The role of aversive responses to emotions. *Journal of Contextual Behavioral Science, 12,* 7-12. https://doi.org/10.1016/j.jcbs.2018.12.004

Castro-Calvo, J., Beltrán-Martínez, P., Flayelle, M., & Billieux, J. (2022). Rumination across internet use disorders (IUDs): A systematic review. *Current Addiction Reports, 9,* 540-570. https://doi.org/10.1007/s40429-022-00442-7

Chisholm, M., & Gall, T. L. (2015). Shame and the x-rated addic-

tion: The role of spirituality in treating male pornography addiction. *Sexual Addiction and Compulsivity, 22,* 259-272. https://doi.org/10.1080/10720162.2015.1066279

Choi, L. J. (2021). "English is always proportional to one's wealth": English, English language education, and social reproduction in South Korea. *Multilingua, 40*, 87-106. https://doi.org/10.1515/multi-2019-0031

Cook, D. R. (1988). Measuring shame: The internalized shame scale. *Alcoholism Treatment Quarterly, 4*, 197-215.

Cooper, A. L. (1998). Sexuality and the internet: Surfing into the new millennium. *CyberPsychology & Behavior, 1*, 187-193. https://doi.org/10.1089/cpb.1998.1.187

De Jong, D. C., & Cook, C. (2021). Roles of religiosity, obsessive-compulsive symptoms, scrupulosity, and shame in self-perceived pornography addiction: A preregistered study. *Archives of Sexual Behavior, 50*, 695-709. https://doi.org/10.1007/s10508-020-01878-6.

Deterding, S., Andersen, M. M., Kiverstein, J., & Miller, M. (2022). Mastering uncertainty: A predictive processing account of enjoying uncertain success in video game play. *Frontiers in Psychology, 13,* 924953. https://doi.org/10.3389/fpsyg.2022.924953

Dickerson, S. S., Gruenewald, T. L., & Kemeny, M. E. (2004). When the social self is threatened: Shame, physiology, and health. *Journal of Personality, 72,* 1191-1216. https://doi.org/10.1111/j.1467-6494.2004.00295.x

Dong, G. H., & Potenza, M. N. (2022). Considering gender differences in the study and treatment of internet gaming disorder. *Journal of Psychiatric Research, 153*, 25-29. https://doi.org/10.1016/j.jpsychires.2022.06.057

Dong, G., Lin, X., & Potenza, M. N. (2015). Decreased functional connectivity in an executive control network is related to impaired executive function in internet gaming disorder. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 57*, 76-85. https://doi.org/10.1016/j.pnpbp.2014.10.012

Durbin, K. A., Barber, S. J., Brown, M., & Mather, M. (2019). Optimism for the future in younger and older adults. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 74*, 565-574. https://doi.org/10.1093/geronb/gbx171

Elgar, F. J., Canale, N., Wohl, M. J. A., Lenzi, M., & Vieno, A. (2018). Relative deprivation and disordered gambling in youths. *Journal of Epidemiology and Community Health, 72*, 589-594. https://doi.org/10.1136/jech-2017-209858

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness, 10*, 1455-1473. https://doi.org/10.1007/s12671-019-01134-6

Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Canadian Centre on Substance Abuse.

Gainsbury, S. M. (2015). Online gambling addiction: The relationship between internet gambling and disordered gambling. *Current Addiction Reports, 2,* 185-193. https://doi.org/10.1007/s40429-015-0057-8

Griffiths, M. D., & Kuss, D. J. (2015). Online addictions: Gambling, video gaming, and social networking. In S. S. Sundar (Ed.), *The handbook of the psychology of communication technology* (pp. 384-403). John Wiley & Sons. https://doi.org/10.1002/9781118426456.ch17

Griffiths, M. D. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10,* 191-197. https://doi.org/10.1080/14659890500114359

Grubbs, J. B., Kraus, S. W., & Perry, S. L. (2019). Self-reported addiction to pornography in a nationally representative sample: The roles of use habits, religiousness, and moral incongruence. *Journal of Behavioral Addictions, 8*, 88-93. https://doi.org/10.1556/2006.7.2018.134

Hoebel, J., Maske, U. E., Zeeb, H., & Lampert, T. (2017). Social inequalities and depressive symptoms in adults: The role of objective and subjective socioeconomic status. *PLOS ONE, 12*, e0169764. https://doi.org/10.1371/journal.pone.0169764

Hooker, E. D., Campos, B., Hoffman, L., Zoccola, P., & Dickerson, S. S. (2020). Is receiving social support costly for those higher in subjective socioeconomic status? *International Journal of Behavioral Medicine, 27*, 325-336. https://doi.org/10.1007/s12529-019-09836-w

Ishii, K. (2015). Subjective socioeconomic status and cigarette smoking interact to delay discounting. *SpringerPlus, 4,* 560. https://doi.org/10.1186/s40064-015-1361-4

Jang, S., Jun, D., Lee, M., & Shin, S. M. (2020). A validation of the Korean version of the clinical video game addiction test 2.0. *Korean Journal of Rehabilitation Psychology, 27*, 67-82. https://doi.org/10.35734/karp.2020.27.4.004

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. *Computers in Human Behavior, 31*, 351-354. https://doi.org/10.1016/j.chb.2013.10.059

Keshavarz, S., Coventry, K. R., & Fleming, P. (2021). Relative deprivation and hope: Predictors of risk behavior. *Journal of Gambling Studies, 37,* 817-835. https://doi.org/10.1007/s10899-020-09989-4

Kim, A., Cha, J., Kwon, S. J., & Lee, S. (2011). Construction and validation of Korean version of CPGI. *Korean Journal of Psychology: General, 30*, 1011-1038. https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART001610925

Kim, H., Kim, E., Suh, E. M., & Callan, M. J. (2018). Development and preliminary validation of a Korean version of the personal relative deprivation scale. *PLOS ONE, 13*, e0197279. https://doi.org/10.1371/journal.pone.0197279

King, D. L., Delfabbro, P., & Griffiths, M. (2010). The convergence

of gambling and digital media: Implications for gambling in young people. *Journal of Gambling Studies, 26*, 175-187. https://doi.org/10.1007/s10899-009-9153-9

Kuo, C. T., & Chen, D. R. (2023). Associations of relative deprivation with self-rated health and health-related quality of life: mediating role of subjective social status. *Public Health, 221*, 131-134. https://doi.org/10.1016/j.puhe.2023.06.015

Lee, I., & Choi, H. (2005). Assessment of shame and its relationship with maternal attachment, hypersensitive narcissism and loneliness. *Korean Journal of Counseling and Psychotherapy, 17,* 651-670. https://www.kci.go.kr/kciportal/ci/sereArticleSearch/ciSereArtiView.kci?sereArticleSearchBean.artiId=ART000978162

Lin, Y., & Liu, Q. (2020). Perceived subjective social status and smartphone addiction tendency among Chinese adolescents: A sequential mediation model. *Children and Youth Services Review, 116,* 105222. https://doi.org/10.1016/j.childyouth.2020.105222

Luthar, S. S., & Becker, B. E. (2002). Privileged but pressured? A study of affluent youth. *Child Development, 73,* 1593-1610. https://doi.org/10.1111/1467-8624.00492

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1,* 130-149. https://doi.org/10.1037/1082-989X.1.2.130

McCormack, A., Shorter, G. W., & Griffiths, M. D. (2014). An empirical study of gender differences in online gambling. *Journal of Gambling Studies, 30,* 71-88. https://doi.org/10.1007/s10899-012-9341-x

McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7,* 64-82. https://doi.org/10.1037/1082-989X.7.1.64

McFadden, K. M. (2010). Cross-addiction: from morbid obesity to substance abuse. *Bariatric Nursing and Surgical Patient Care, 5,* 145-178. https://doi.org/10.1089/bar.2010.9922

Melodia, F., Canale, N., & Griffiths, M. D. (2022). The role of avoidance coping and escape motives in problematic online gaming: A systematic literature review. *International Journal of Mental Health and Addiction, 20,* 996-1022. https://doi.org/10.1007/s11469-020-00422-w

Mishra, S., & Novakowski, D. (2016). Personal relative deprivation and risk: An examination of individual differences in personality, attitudes, and behavioral outcomes. *Personality and Individual Differences, 90,* 22-26. https://doi.org/10.1016/j.paid.2015.10.031

Morichetta, A., Trevisan, M., Vassio, L., & Krickl, J. (2021). Understanding web pornography usage from traffic analysis. *Computer Networks, 189,* 107909. https://doi.org/10.1016/j.comnet.2021.107909

Negash, S., Sheppard, N. V. N., Lambert, N. M., & Fincham, F. D. (2016). Trading later rewards for current pleasure: Pornography consumption and delay discounting. *Journal of Sex Research, 53*, 689-700. https://doi.org/10.1080/00224499.2015.1025123

OECD. (2022). Internet access (indicator). OECD. https://doi.org/10.1787/69c2b997-en

Pascual-Leone, A., Gomes, K., Orr, E. S., Kaploun, K. A., & Abeare, C. A. (2011). Affective and cognitive correlates of gambling behavior in university students. *Journal of Gambling Studies, 27,* 401-408. https://doi.org/10.1007/s10899-010-9226-9

Paulhus, D. L., Robins, R. W., Trzesniewski, K. H., & Tracy, J. L. (2004). Two replicable suppressor situations in personality research. *Multivariate Behavioral Research, 39*, 303-328. https://doi.org/10.1207/s15327906mbr3902_7

Piff, P. K. (2014). Wealth and the inflated self: Class, entitlement, and narcissism. *Personality and Social Psychology Bulletin, 40*, 34-43. https://doi.org/10.1177/0146167213501699

Potenza, M. N. (2008). Review. The neurobiology of pathological gambling and drug addiction: An overview and new findings. Philosophical Transactions of the Royal Society of London. *Series B, Biological Sciences, 363*, 3181-3189. https://doi.org/10.1098/rstb.2008.0100

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40,* 879-891. https://doi.org/10.3758/BRM.40.3.879

Qian, D., Tang, Y., Wei, H., Zhang, Y., & Zhou, Z. (2018). The relationship between relative deprivation and online gaming addiction in college students: A moderated mediation model. *Acta Psychologica Sinica, 50,* 1041-1050. https://doi.org/10.3724/SP.J.1041.2018.01041

Rozgonjuk, D., Schivinski, B., Pontes, H. M., & Montag, C. (2023). Problematic online behaviors among gamers: The links between problematic gaming, gambling, shopping, pornography use, and social networking. *International Journal of Mental Health and Addiction, 21,* 240-257. https://doi.org/10.1007/s11469-021-00590-3

Sassover, E., & Weinstein, A. (2020). Should compulsive sexual behavior (CSB) be considered as a behavioral addiction? A debate paper presenting the opposing view. *Journal of Behavioral Addictions, 11,* 166-179. https://doi.org/10.1556/2006.2020.00055

Shaghaghy, F., Saffarinia, M., Iranpoor, M., & Soltanynejad, A. (2011). The relationship of early maladaptive schemas, attributional styles and learned helplessness among addicted and non-addicted men. *Addiction & Health, 3*, 45-52. https://pubmed.ncbi.nlm.nih.gov/24494116

Smith, H. J., Pettigrew, T. F., Pippin, G. M., & Bialosiewicz, S. (2012). Relative deprivation: A theoretical and meta-analytic review. *Personality and Social Psychology Review, 16,* 203-232. https://doi.org/10.1177/1088868311430825

Steinmetz, F., Fiedler, I., von Meduna, M., & Ante, L. (2022). Pay-to-win gaming and its interrelation with gambling: Findings from a

representative population sample. *Journal of Gambling Studies, 38,* 785-816. https://doi.org/10.1007/s10899-021-10042-1

Stevens, M. W. R., King, D. L., Dorstyn, D., & Delfabbro, P. H. (2019). Cognitive-behavioral therapy for internet gaming disorder: A systematic review and meta-analysis. *Clinical Psychology and Psychotherapy, 26*, 191-203. https://doi.org/10.1002/cpp.2341

Sun, Y., & Zhang, Y. (2021). A review of theories and models applied in studies of social media addiction and implications for future research. *Addictive Behaviors, 114,* 106699. https://doi.org/10.1016/j.addbeh.2020.106699

Tan, J. J. X., Kraus, M. W., Carpenter, N. C., & Adler, N. E. (2020). The association between objective and subjective socioeconomic status and subjective well-being: A meta-analytic review. *Psychological Bulletin, 146,* 970-1020. https://doi.org/10.1037/bul0000258

Tangney, J. P., & Dearing, R. L. (2003). *Shame and guilt*. Guilford Press.

Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology, 101*, 469-478. https://doi.org/10.1037/0021-843X.101.3.469

Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2020). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal, 30,* 96-124. https://doi.org/10.1111/isj.12253

Van Rooij, A. J., Schoenmakers, T. M., & Van de Mheen, D. (2017). Clinical validation of the C-VAT 2.0 assessment tool for gaming disorder: A sensitivity analysis of the proposed DSM-5 criteria and the clinical characteristics of young patients with 'video game addiction'. *Addictive Behaviors, 64,* 269-274. https://doi.org/10.1016/j.addbeh.2015.10.018

Wilkinson, R. G. (2001). *Mind the gap: Hierarchies, health and human evolution.* Yale University Press.

Wright, C. E., & Steptoe, A. (2005). Subjective socioeconomic position, gender and cortisol responses to waking in an elderly population. *Psychoneuroendocrinology, 30*, 582-590. https://doi.org/10.1016/j.psyneuen.2005.01.007

Yoo, G. S., Yang, D. Y., & Jeong, B. (2019). Effects of subjective socioeconomic status on relative deprivation and subjective well-being among college students: Testing the 'Silver-Spoon-Discourse' based belongingness in Korean Society. *Family and Environment Research, 57,* 329-340. https://doi.org/10.6115/fer.2019.024

Yoon, S., Lee, M., Lee, J., & Hong, S. (2021). The effects of parent's smartphone dependency on child's smartphone dependency: Serial mediating effects of parenting, child's depression and aggression. *Korean Journal of Child Studies, 42*, 707-720. https://doi.org/10.5723/kjcs.2021.42.6.707

Zheng, X., Jing, C., Liu, Y., & Zhang, Y. Y. (2023). Why are people 'lying flat'? Personal relative deprivation suppresses self-improvement motivation. *British Journal of Social Psychology, 62,* 932-948. https://doi.org/10.1111/bjso.12611

https://doi.org/10.15842/kjcp.2025.44.1.001