



Psychometric Properties of the Czech Version of the Self-Objectification Beliefs and Behaviors Scale (SOBBS)

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Abstract

The Self-Objectification Beliefs and Behaviors Scale (SOBBS) was adapted to the Czech context using multiple independent translations and subsequent cognitive interviews. A pilot analysis of a secondary dataset ($N = 959$) indicated a suboptimal fit for the original structure ($\chi^2(76) = 569.253$, CFI = .903, RMSEA = .083, SRMR = .065) and a lack of scalar invariance. Using a newly-collected sample of 548 adults (72% women; aged from 18 to 75 with $M = 25.8$, and $SD = 10.1$), the original model also showed unsatisfactory fit ($\chi^2(76) = 292.76$, CFI = .930, RMSEA = .072, SRMR = .054), but a modified 13-item model (excluding Item 2) satisfied Dynamic Fit Index criteria ($\chi^2(64) = 210.40$, CFI = .948, RMSEA = .065, SRMR = .053). These results support the modified 13-item SOBBS' two-factor structure (i.e., body self-monitoring and body as a representation of the Self), high internal consistency ($\alpha = .87$, $\omega = .90$ for the total scale; $\alpha = .87$, $\omega = .87$ for body self-monitoring; and $\alpha = .83$, $\omega = .83$ for body as a representation of the Self), evidence for concurrent validity, and scalar measurement invariance (i.e., equal factor loadings and intercepts), allowing for gender-based comparisons. Women reported higher overall self-objectification ($d = 0.22$) and body self-monitoring ($d = 0.48$) than men, with no significant differences in the body-as-self-representation dimension. Consistent with Messick's framework, the results support the validity of interpreting scores from the modified 13-item Czech SOBBS for research purposes. While promising for identifying maladaptive body-monitoring, further evidence is required to validate interpretations for clinical use.

Keywords: Self-Objectification Beliefs and Behaviors Scale; self-objectification; confirmation factor analysis; Czech adaptation; validation

Introduction

Originating from Objectification Theory (OT; Fredrickson & Roberts, 1997), self-objectification is defined as “the tendency to introject an objectifying third-person perspective on one's own body, evaluating it in terms of its value and attractiveness to others, rather than its value and function for the Self” (Fredrickson et al., 2011, p. 690). Internalizing an objectifying perspective makes individuals view their own bodies from an outsider’s gaze and perceive their bodies as the primary aspect of their identity. Self-objectification has cognitive (e.g., perceiving the body as a key element of self) and behavioral components (e.g., body self-monitoring). While most commonly used measurement instruments do not take into account these components, the Self-Objectification Beliefs and Behaviors Scale (SOBBS) was developed (Linder & Tantleff-Dunn, 2017), operationalizing self-objectification as a two-dimensional construct that captures both *body perception as a representation of the Self* and *body self-monitoring*. Although evidence of validity has been reported across different cultural settings (e.g., Almeida et al., 2024), the scale’s use has focused predominantly on English-speaking populations (e.g., Hu et al., 2025).

This study adapted the Self-Objectification Beliefs and Behaviors Scale (SOBBS) into Czech to examine its psychometric properties in a Czech-speaking adult population. The Czech version may also be useful in the broader Central European context, because its linguistic and cultural proximity could facilitate adaptation for use in related languages and cultures. SOBBS’ validity was assessed based on Messick's unified theoretical framework (1995), examining content validity through a rigorous adaptation process, response processes via cognitive interviews, internal structure using confirmatory factor analysis, measurement invariance across genders to assess generalizability, and relations to other variables by analyzing concurrent relationships with established constructs (i.e., body shame and objectified body consciousness). The study also explored gender differences in self-objectification.

Our study also contributes to the issue of men-specific appearance-related pressures. Although OT was originally developed to explain women's experiences in patriarchal contexts, research highlights that men are also subject to pressures concerning muscularity and fitness ideals (Moradi & Huang, 2008; Thompson & Cafri, 2007). Accordingly, this study includes both women and men participants to reflect contemporary developments in the field and to ensure the scale's applicability across gender groups.

(Sexual) Objectification and Self-Objectification

According to OT (Fredrickson & Roberts, 1997), self-objectification originates from sexual objectification (e.g., sexual harassment, inappropriate staring) in which a woman adopts a third-person's gaze (most often a male gaze) when contemplating her own body. Self-objectification refers to the tendency to view one's body from an external perspective, prioritizing attractiveness to others over its personal value or function (Fredrickson et al., 2011). Lindner and Tantleff-Dunn (2017) expanded the original OT (Fredrickson & Roberts, 1997) by highlighting that self-objectification involves not only internalizing a third-person view of one's body but also viewing appearance as a core aspect of one's self-concept (Lindner & Tantleff-Dunn, 2017). There are wide-ranging adverse consequences of self-objectification, including reduced concentration (Winn & Cornelius, 2020), elevated body shame, negative body image (Dollimore et al., 2024; Saunders et al., 2024), eating disorders (Kilpela et al., 2019), and depressive symptoms (Lamp et al., 2019).

Self-objectification contains state and trait forms. Whereas state self-objectification means a temporary condition triggered by specific situations (e.g., viewing objectifying media), which may lead to body shame or restricted eating (Miner-Rubino et al., 2002; Moradi & Huang, 2008), trait self-objectification reflects a stable tendency to evaluate one's body by appearance rather than function, reflecting internalized cultural norms (Miner-Rubino et al.,

2002). While considered relatively enduring, trait self-objectification varies by age, life circumstances, and social context (Winn & Cornelius, 2020). The SOBBS scale (Lindner & Tantleff-Dunn, 2017) measures the trait form of self-objectification.

Introducing the self-objectification framework requires distinguishing it from the related theory of Objectified Body Consciousness (OBCT; McKinley & Hyde, 1996). While both theories posit that individuals internalize the societal gaze, they diverge fundamentally in how they define the core construct. OBCT conceptualizes objectified body consciousness as a state comprising three inseparable components: surveillance, body shame, and appearance control beliefs. In contrast, Objectification Theory (OT; Fredrickson & Roberts, 1997) defines self-objectification as the adoption of an observer's perspective on one's own body. This distinction is not merely methodological but theoretical: within the OT framework, self-objectification is the process of monitoring, which may or may not lead to body shame depending on whether the individual meets internalized standards. Unlike OBCT, OT does not assume that body shame or control beliefs are intrinsic parts of the self-objectification construct itself, but rather distinct consequences (or moderators). This study adheres to the OT framework (and the derived SOBBS) to measure the cognitive-behavioral process of self-objectification distinct from its potential emotional outcomes.

Critique of Existing Self-Objectification Measurement Instruments

There has been a call to refine the construct of self-objectification and the existing measurement instruments (Calogero, 2011; Moradi, 2010). Existing scales have been questioned for content and factor validity, and their exclusive focus on women (Lindner & Tantleff-Dunn, 2017). From these, the Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998) has been widely used to assess self-objectification by asking the extent to which individuals prioritize appearance over body functionality. Participants rank 12 body

attributes (six appearance-related, six function-related), and the score reflects the difference in importance assigned to each category. The SOQ is limited, for instance, by not capturing the behavioral aspect of self-objectification (i.e., body self-monitoring), which diminishes content validity (Lindner & Tantleff-Dunn, 2017), and by the ordering of the attributes, which can be challenging for participants to understand (Lindner & Tantleff-Dunn, 2017; Myers & Crowther, 2007). This makes it difficult to estimate internal consistency (Almeida et al., 2024). The SOQ scale, like most self-objectification instruments, was developed in the American context, and it has been primarily tested with women, which limits its use in other cultural settings and with other gender groups.

As mentioned earlier, the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996) has been commonly used to measure self-objectification, despite the differences in theoretical constructs. OBCS measures three dimensions: body surveillance, body shame, and appearance control beliefs. Although OBCS, in contrast to SOQ, measures the behavioral aspect of self-objectification (i.e., body self-monitoring), the cognitive dimension (i.e., the degree of internalization of the external evaluator's perspective) is not sufficiently reflected there (Lindner & Tantleff-Dunn, 2017). Another OBCS' limitation lies in problems with the translation and item interpretation across cultures (Sicilia et al., 2019). Finally, the three-factor structure was fundamentally questioned, because the body-control dimension caused a rather significant model-data misfit (Moradi & Varnes, 2017). Altogether, Lindner and Tantleff-Dunn (2017) emphasize that neither scale presents a valid measurement of self-objectification nor assesses the full content of self-objectification.

The Self-Objectification Beliefs and Behaviors Scale (SOBBS)

The SOBBS has demonstrated satisfactory psychometric properties and consistent factor structure across diverse cultural and gender groups (Almeida et al., 2024; Cascalheira et

al., 2022; Hu et al., 2025). The scale has shown excellent internal consistency and significant correlations with self-objectification measures, and with body shame, depression, and dysfunctional eating habits (Cascalheira et al., 2022; Hu et al., 2025; Lang & Ye, 2021; Lindner & Tantleff-Dunn, 2017). Although SOBBS was developed on American female college samples, recent cross-cultural validations (e.g., China, Brazil, USA) support its robustness (Almeida et al., 2024; Cascalheira et al., 2022; Hu et al., 2025).

Drawing on the Objectification Theory (Fredrickson & Roberts, 1997) and the empirical evidence from these international adaptations, the present study validated the Czech version of the SOBBS. We derived four specific hypotheses grounded in prior findings. First, we expected to replicate the original latent structure. Second, based on prior findings—with Lindner and Tantleff-Dunn (2017) reporting $r = .56$ and similar values observed in other validation studies (Almeida et al., 2024; Cascalheira et al., 2022; Hu et al., 2025; Lang & Ye, 2021)—we anticipated a moderate to high positive association between the two dimensions. Third, although the scale is multidimensional, we assess the reliability of the total score to ensure comparability with the original study (Lindner & Tantleff-Dunn, 2017) and subsequent validation studies. Finally, following recent findings by Hu et al. (2025), we anticipate that the scale structure will function equivalently across men and women.

H1: *The SOBBS scale has a two-factor structure (i.e., body self-monitoring and the body as a representation of the Self).*

H2: *The SOBBS factors (i.e., body self-monitoring and body as a representation of the Self) were expected to show a moderate to high positive association, $r = [.45, .65]$.*

H3: *The SOBBS scale shows acceptable internal consistency for the total scale and individual subscales (Cronbach's $\alpha > .70$ and McDonald's $\omega_t > .70$).*

H4: *The scale demonstrates measurement invariance across genders at the scalar level.*

Self-Objectification and Objectified Body Consciousness

SOBBS's relationships with other constructs were also examined. Based on theoretical overlap in the self-monitoring of appearance, we expected a strong positive correlation between the body self-monitoring subscales of the OBCS and the SOBBS ($r = [.60, .80]$). Despite the overlap, a tighter relationship was not expected because the OBCS conceptualizes body monitoring more broadly and in a slightly different way than the SOBBS. Whereas the SOBBS focuses solely on the process of viewing one's own body from the perspective of others, the OBCS additionally captures the broader context, such as a preference for appearance over other aspects of the body or social comparison. The previous studies have documented the correlation between OBCS' body self-monitoring and SOBBS $r = [.64, .70]$ (Hu et al., 2025; Lang & Ye, 2021; Linder & Tantleff-Dunn, 2017). We also expected the OBCS's body self-monitoring subscale to be moderately to highly positively correlated with SOBBS' body as a representation of the Self ($r = [.40, .60]$). Unlike body self-monitoring, the body as a representation of the Self (SOBBS) and body self-monitoring (OBCS) are different dimensions of self-objectification. This has been supported by previous research, where positive correlations ($r = [.50, .60]$) were found between these dimensions (Hu et al., 2025; Lang & Ye, 2021).

Lastly, we expected a moderate to strong positive correlation between body shame (OBCS) and the self-objectification total score (SOBBS) ($r = [.30, .50]$). Body shame represents an emotional consequence of self-objectification rather than a component of the construct itself, because OT (Fredrickson & Roberts, 1997) suggests that perceiving one's own body as an object increases the likelihood of experiencing body shame. This arises from comparing oneself to internalized or cultural ideals that are perceived as unattainable (Noll & Fredrickson, 1998). A significant moderate positive correlation between body shame and self-objectification in adults has been supported by a comprehensive meta-analysis of 254 studies ($r = .46$; Saunders et al., 2024) and other research (Dollimore et al., 2024; Maheux et al., 2021).

H5: *The relationship between the body self-monitoring subscale (OBC) and the body self-monitoring subscale (SOBBS) is strong and positive; $r = [.60, .80]$.*

H6: *The relationship between the body self-monitoring subscale (OBC) and the body as a representation of the Self subscale (SOBBS) is moderately to very strong and positive; $r = [.40, .60]$.*

H7: *The relationship between the body shame subscale (OBC) and the total score of the SOBBS scale is moderately strong and positive; $r = [.30, .50]$.*

Gender and Self-Objectification

OT highlights the psychological risks women face in patriarchal societies, where gender stereotypes and media portrayals emphasize female sexual attractiveness (Paasonen, 2020; Ward, 2016) and women are sexually objectified and valued dominantly for their appearance (Fredrickson & Roberts, 1997). Compared to men, women are also more often judged by appearance in social interactions (Schaefer & Thompson, 2018b), which contributes to higher self-objectification (Daniels et al., 2020; Saunders et al., 2024; Szymanski et al., 2010). But self-objectification affects men as well, particularly in relation to the muscular ideal promoted by fitness media (Thompson & Cafri, 2007), which may lead to body shame, appearance anxiety, restrictive eating, excessive exercise, and steroid use (Hebl et al., 2004; Ricciardelli & McCabe, 2004). While women are pressured to be thin and attractive, men face demands for muscularity and strength, reflecting gender-specific beauty norms (Morry & Staska, 2001).

Despite these differences, women and men face similar consequences of self-objectification: body shame, depressed mood, body dissatisfaction, and changes in eating habits (Saunders et al., 2024; Schaefer & Thompson, 2018a; Tiggemann & Kuring, 2010). Still, for women, these relationships tend to be stronger due to greater exposure to objectification and social pressures (Szymanski et al., 2010).

H8: *The female gender has a significantly higher self-objectification value than the male gender; $d = [0.40, 0.60]$.*

Method

Research Transparency Statement

Preregistration: The hypotheses, method, and analysis plans were preregistered (<https://doi.org/10.17605/OSF.IO/CUA7K>, in the Czech language; the English translated version is in Supplementary Materials) on March 17, 2025, prior to data collection, which began on March 19, 2025. There were deviations from the pre-registration (for details, see the Data Analysis subsection in the Method section). **Supplementary Materials:** All study materials are publicly available (<https://doi.org/10.17605/OSF.IO/VM6ZS>). **Data:** All data are publicly available (<https://doi.org/10.17605/OSF.IO/VM6ZS>). **Analysis scripts:** All analysis scripts are publicly available (<https://doi.org/10.17605/OSF.IO/VM6ZS>).

Power Analysis

The required sample size was estimated with the semPower (Moshagen & Bader, 2024) and lavaan version 0.6-19 (Rosseel, 2012) packages in R version 4.4.1 (R Core Team, 2024). An over-identified model ($df = 76$) was estimated in lavaan and then used to calculate a priori power analysis in semPower. Based on the required test power $(1 - \beta) = .90$, degrees of freedom of the model $df = 76$, the minimal required sample size was estimated as 233 for an RMSEA-based power analysis to test the hypothesis of close fit ($RMSEA \leq .05$). However, this value served only as a minimum lower bound, our goal was to maximize the sample size beyond this threshold.

Participants

The sample consisted of 548 participants (72% women, 27% men, 1% non-binary) aged 18–75 ($M = 25.8$, $SD = 10.1$). 83% participants indicated heterosexual orientation, 3% homosexual, 10% bisexual, and 6% other. Data collection proceeded via snowball sampling for one week by sharing the questionnaire link via social media (e.g., Instagram, Facebook, LinkedIn) and through direct messages or email, and participants were encouraged to share the link within their own networks. Participants aged 18+ who completed at least 50% of the items in the first SOBBS dimension (i.e., Body Self-Monitoring) were included in the final sample. Based on these criteria, 23 participants were excluded from the study. To enter a drawing for two CZK 200 e-shop (Alza.cz) vouchers, respondents had to complete the entire questionnaire (which included “I don't want to answer” as a valid option). Formal ethical approval was not required as the data collection was conducted as part of a bachelor's thesis project involving a non-interventional, anonymous online survey with general adult participants, which falls under the exemption criteria of the local institutional review board. However, the study strictly adhered to the ethical standards of the Declaration of Helsinki and the American Psychological Association.

Pilot Study

We analyzed an available secondary dataset from the project *Positive body image in adolescence* (Masaryk University, 2022) to evaluate the factor structure on a preliminary version of SOBBS's adaptation. The dataset included a sample of 959 adolescents and young adults aged 15 to 23 (58% girls, 38% boys, 4% other genders). The primary role of this analysis was to provide a baseline for assessing the psychometric properties of the final adaptation used in the main study. By comparing the results from this preliminary version with the current data,

we aimed to verify the improvements achieved through our rigorous adaptation process and to empirically ground our expectations regarding the factor structure.

Adaptation Process

The adaptation followed guidelines for body image instruments (Awan & Barron, 2018). Five independent forward translations of the SOBBS and four of the OBCS were provided by the authors and English philology graduates, which were synthesized into a preliminary Czech version (see Supplementary Material: Adaptation Process). This version was subsequently tested via cognitive interviews in two phases ($N = 6$; 4 women, 2 men) using a think-aloud protocol with verbal probing. The combination of techniques allowed for better structure, reduced participant demands, and minimized irrelevant responses (Willis, 2005).

The first phase of cognitive interviews and the following consultation with a psycholinguist revealed comprehension issues with several items. Based on the expert review, revisions focused on three main linguistic aspects: (a) grammatical precision, specifically correcting verbal aspect to imply continuous action (e.g., changing the perfective *představit* to the imperfective *představovat*); (b) semantic clarity regarding the third-person perspective (e.g., refining *pro ostatní* to *z pohledu ostatních*); and (c) stylistic naturalness, including word order optimization and the reduction of redundant pronouns (e.g., replacing “how I look” with “my appearance” in SOBBS9).

Furthermore, more substantial revisions were made based on participant feedback to Items 1, 4, 5, 6, and 7. Participants especially struggled with items lacking frequency anchors (e.g., “often”), leading to uncertainty about agreement thresholds. To resolve this issue, the quantifier “often” was added to Items 1, 4, and 6, as was the case in the original wording of Item 5. Other changes included simplifying Item 7 from “even when I am alone” to only “when I am alone”. The original wording suggests that participants must think about their body image

alone and at the same time around others to agree, which led to some complications when answering this question. In Item 5, participants perceived the word “must” as redundant. These modifications were verified in the second phase of interviews. All final Czech items of the SOBBS are presented in Table 1. Cognitive interviews also provided strong evidence for response process validity, because participants generally interpreted the items in line with the intended theoretical constructs.

Table 1*Czech Translation of the SOBBS Items*

Item	Original English version	Final Czech version
SOBBS1	I try to imagine what my body looks like to others (i.e., like I am looking at myself from the outside).	Často se snažím si představovat, jak mé tělo vidí ostatní (tj. jako bych se na sebe díval/a zvenčí).
SOBBS2* (Excluded from final scale)	I choose specific clothing or accessories based on how they make my body appear to others.	Konkrétní oblečení nebo doplňky si vybírám podle toho, jak se díky nim bude moje tělo jevit ostatním.
SOBBS3	When I look in the mirror, I notice areas of my appearance that I think others will view critically.	Když se dívám do zrcadla, všímám si na svém vzhledu věcí, o kterých si myslím, že je ostatní budou vnímat kriticky.
SOBBS4	I consider how my body will look to others in the clothing I am wearing.	Často zvažuji, jak bude moje tělo působit na ostatní v oblečení, které mám zrovna na sobě.
SOBBS5	I often think about how my body must look to others.	Často přemýšlím nad tím, jak mé tělo vypadá z pohledu ostatních.
SOBBS6	I try to anticipate others' reactions to my physical appearance.	Často se pokouším předvídat reakce ostatních na můj vzhled.
SOBBS7	I have thoughts about how my body looks to others even when I am alone.	Když jsem o samotě, přemýšlím nad tím, jak mé tělo vypadá z pohledu ostatních.
SOBBS8	Looking attractive to others is more important to me than being happy with who I am inside.	Vypadat atraktivně pro druhé je pro mě důležitější než být spokojený/á s tím, kým jsem uvnitř.
SOBBS9	How I look is more important to me than how I think or feel.	To, jak vypadám, je pro mě důležitější, než jak přemýšlím nebo se cítím.

SOBBS10	My physical appearance is more important than my personality.	Můj vzhled je důležitější než moje osobnost.
SOBBS11	My physical appearance says more about who I am than my intellect.	Můj vzhled vypovídá o tom, kým jsem, více než můj intelekt.
SOBBS12	How sexually attractive others find me says something about who I am as a person.	To, jak sexuálně atraktivní ostatním připadám, vypovídá o tom, kým jsem jako člověk.
SOBBS13	My physical appearance is more important than my physical abilities.	Můj vzhled je důležitější než moje fyzické schopnosti.
SOBBS14	My body is what gives me value to other people.	Moje tělo určuje, jakou mám hodnotu pro ostatní.

Note. Based on the psychometric analysis in this study, Item SOBBS2 was excluded from the final validated structure due to redundancy and poor fit. Researchers are advised to use the 13-item version (excluding SOBBS2) for future data collection in the Czech context.

Measures

Self-Objectification Beliefs and Behaviors Scale (SOBBS)

SOBBS (Lindner & Tantleff-Dunn, 2017) measures self-objectification across two subscales: body self-monitoring and body as a representation of the Self (seven items each). Items were rated on a Likert-type scale that ranged from 1 (Strongly disagree) to 5 (Strongly agree), with additional options “Don't know” and “Don't want to answer” to avoid forced responses. Higher scores indicate higher body self-monitoring ($M = 22.83$, $SD = 6.08$) and body as a representation of the Self ($M = 13.53$, $SD = 4.30$). The total SOBBS score was further summed from the scores of both subscales ($M = 36.43$, $SD = 8.87$). The internal consistencies were high for the total score ($\alpha = .88$, $\omega_t = .91$), the body self-monitoring subscale ($\alpha = .88$, $\omega_t = .88$), and the body as a representation of the Self subscale ($\alpha = .83$, $\omega_t = .83$).

Objectified Body Consciousness Scale (OBCS)

For validation purposes, two subscales from the OBCS were used: body self-monitoring and body shame (each comprising of eight items; see Supplementary Material: Adaptation process). Participants responded on a Likert-type scale that ranged from 1 (Strongly disagree) to 5 (Strongly agree), with added options “Don't know” and “Don't want to answer.” After

reversing the scores, higher scores indicated greater body self-monitoring ($M = 24.99$, $SD = 5.86$) or body shame ($M = 21.90$, $SD = 6.70$). The internal consistencies were high for the body self-monitoring subscale ($\alpha = .85$, $\omega_t = .85$) and the body shame subscale ($\alpha = .87$, $\omega_t = .88$).

Data Analysis

Prior to analysis, non-substantive response options (i.e., “Don't know” and “Don't want to answer”) were recoded as missing values (NA) to distinguish them from the valid neutral midpoint.

Using the pilot data, we examined the performance of the Confirmatory Factor Analysis (CFA) model for the SOBBS, estimated internal consistency, and tested invariance between women and men. After that, using the current data, we performed a CFA to examine the SOBBS's factor structure. To evaluate model fit, we employed Dynamic Fit Indices (DFI). Unlike traditional fixed cutoffs, DFI generates customized thresholds tailored to the specific model characteristics (McNeish, 2023). Consequently, model fit was interpreted strictly against these dynamic thresholds, supplemented by local fit assessment using residual matrices recommended by Kline (2023). Model parameters were estimated using Maximum Likelihood with Robust standard errors (MLR), as it yields unbiased estimates comparable to categorical estimators for 5-point scales, even under non-normality (Li, 2016; Rhemtulla et al., 2012). For model comparison, we utilized the Bayesian Information Criterion (BIC), favoring the model with the lowest value. Subsequently, missing data were handled using Full Information Maximum Likelihood (FIML), which was preferred over pairwise or listwise deletion to maximize statistical power and minimize bias (Enders, 2010).

Cronbach's alpha (α) and McDonald's omega total (ω_t) were reported for internal consistency. Measurement invariance across gender was tested by comparing nested models

(configural, metric, and scalar). We adopted a hybrid strategy considering invariance supported if $\Delta\text{CFI} \geq -.010$, supplemented by $\Delta\text{SRMR} \leq .030$ (for metric) or $\Delta\text{SRMR} \leq .010$ (for scalar), recommended by Chen (2007). This was further supplemented by the RMSEA of the difference test (RMSEA_D) proposed by Savalei et al. (2024), where values of $\text{RMSEA}_D \leq .08$ were interpreted as additional support for invariance. Additionally, model selection was guided by the lowest Bayesian Information Criterion (BIC) value, representing the best trade-off between fit and parsimony (van de Schoot et al., 2012). For the purpose of examining concurrent validity and group comparisons, sum scores were calculated by summing the respective items for each subscale. Consequently, as part of the validation, we examined the Pearson correlations between these sum scores of (a) individual SOBBS factors; (b) the body self-monitoring dimension in the OBC and SOBBS subscales; and (c) the total SOBBS score and body shame in OBC. Finally, we used an independent samples *t*-test to test whether women achieved a higher total SOBBS score than men.

All analyses were performed in R version 4.4.1 (R Core Team, 2024). A complete list of used R packages and their citations is provided in Appendix B2.

Deviations from Pre-Registration

We acknowledge several deviations from the original pre-registration plan (<https://osf.io/cua7k>), which evolved to enhance methodological rigor. These deviations include: a pilot study, using Maximum Likelihood estimator with Robust standard errors and dynamic cut-offs instead of the Maximum Likelihood estimator and the traditional cut-offs to assess model fit, relying on the robust RMSEA of the difference test to test measurement invariance, utilizing a cut-off of at least 50% valid data in SOBBS items to be included in the analysis and Full Information Maximum Likelihood (FIML) to handle missing data, performing an item analysis, and reordering thy hypotheses. Additionally, we made exploratory changes to

the model, such as removing item SOBBS2, and tested additional gender differences in SOBBS dimensions. The Appendix B1 provides a detailed account of these deviations.

Results

Pilot Study

The two-factor CFA model did not fit the data well ($\chi^2(76) = 569.253$, $p < .001$, SRMR = .065, RMSEA = .083, 90% CI = [.076, .090], CFI = .903). Although the observed CFI and SRMR met the pre-registered criteria (CFI > .90, SRMR < .08), the model failed to meet the tailored dynamic fit cutoffs (CFI \geq .966, RMSEA \leq .050, SRMR \leq .048), indicating substantial model-data misfit. Most standardized loadings exceeded .50, except SOBBS12 ($\lambda = .49$; see Supplementary Material: Figures and Tables) and SOBBS14 ($\lambda = .46$), which were marginal but acceptable. Of the 91 residual covariances, 24 exceeded $r = |.10|$, indicating notable model-data misfit. Items 2, 8, 10, 11, and 14 showed systematic residual covariances (see Table A1 in Appendix A). For item analysis, correlation matrix, and histograms of SOBBS items and sum scores, see Supplementary Material: Figures and Tables.

The pilot data showed a moderate correlation between the SOBBS factors, $r = .50$, 95% CI [.433, .567]. The internal consistency estimates were satisfactory for the total scale, $\alpha = .87$ and $\omega_t = .89$; for the body self-monitoring subscale, $\alpha = .88$ and $\omega_t = .88$; and for the body as a representation of the Self subscale, $\alpha = .80$ and $\omega_t = .80$. Metric invariance was fully supported ($\Delta\text{CFI} = -.001$, $\Delta\text{SRMR} = .003$, $\text{RMSEA}_D = .020$). However, scalar invariance was not supported, showing a decrease in fit indices that exceeded the recommended threshold ($\Delta\text{CFI} = -.013$; Chen, 2007), indicating non-equivalence of intercepts. Although the robust $\text{RMSEA}_D = .073$ fell within the acceptable range (Savalei et al., 2024), the substantial drop in CFI suggests that differences in intercepts are non-negligible (Chen, 2007). Consequently,

while the factor structure and loadings are equivalent across genders in the pilot sample, latent mean comparisons are not fully justified (see Table 2).

Table 2

Invariance of the SOBBS between male and female genders in the pilot study

	χ^2	RMSEA	RMSEA _D	CFI	Δ CFI	SRMR	Δ SRMR	BIC
Configural model	593.138*	.080		.901		.063		35894
Metric model	609.432*	.078	.020	.900	-.001	.066	.003	35829
Scalar model	678.970*	.080	.073	.887	-.013	.071	.005	35816

Notes: * $p < .001$. Configural model = baseline model, same factor structure ($df = 152$). Metric model = additionally fixed unstandardized factors ($df = 164$). Scalar model = additionally fixed intercepts ($df = 176$). RMSEA_D = root mean square error of approximation difference; CFI = comparative fit index; SRMR = standardized root mean square residual; BIC = Bayesian information criterion. Δ = difference in the absolute value of the index in comparison to the previous model.

Main Study Descriptive Statistics

Descriptive statistics from the main model are presented in Table 3. For histograms of SOBBS items and sum scores, see Supplementary Material: Figures and Tables. The items of the body self-monitoring dimension ranged from a more negative skewness (mostly SOBBS3) to a distribution close to symmetrical (SOBBS6) to a slightly positive skewness (SOBBS7). Within the body as a representation of the Self dimension, all items were significantly positively skewed (mostly SOBBS10). This floor effect was reflected in reduced item variability, with most items having $SD \leq 0.90$.

Descriptive statistics of summary scores are also presented in Table 3. The total SOBBS and body self-monitoring dimension showed approximately symmetric distributions, with body self-monitoring being slightly platykurtic, while the body as a representation of the Self dimension was positively skewed and leptokurtic, indicating a floor effect.

Table 3*Descriptive statistics of SOBBS items and summary scores*

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Md</i>	<i>min-max</i>	<i>skewness</i>	<i>kurtosis</i>
SOBBS1	536	3.48	1.08	2	1-5	-0.46	-0.70
SOBBS2*	546	3.08	1.17	3	1-5	-0.13	-1.08
SOBBS3	547	3.71	1.08	2	1-5	-0.73	-0.39
SOBBS4	546	3.53	1.09	2	1-5	-0.44	-0.84
SOBBS5	543	3.41	1.17	2	1-5	-0.31	-1.03
SOBBS6	541	3.05	1.12	3	1-5	-0.05	-1.02
SOBBS7	540	2.73	1.17	3	1-5	0.23	-1
SOBBS8	516	2.12	0.99	4	1-5	0.85	0.26
SOBBS9	519	2.03	0.90	4	1-5	0.92	0.85
SOBBS10	518	1.70	0.76	4	1-5	1.26	2.42
SOBBS11	511	1.79	0.77	4	1-5	0.83	0.58
SOBBS12	517	1.87	0.86	4	1-5	1.10	1.19
SOBBS13	514	2.07	0.88	4	1-5	0.86	0.63
SOBBS14	514	2.12	1.00	4	1-5	0.68	-0.26
SOBBS**	519	36.43	8.87	36	17-64	0.22	-0.18
SOBBS_BSM**	544	22.83	6.08	23	8-35	-0.13	-0.82
SOBBS_BRS	515	13.53	4.30	13	6-32	0.89	1.27
OBC_BSM	497	24.99	5.86	25	11-39	-0.01	-0.79
OBC_BS	476	21.90	6.70	21	8-40	0.33	-0.54

Notes: SOBBS1–7 are items of the body self-monitoring dimension; SOBBS8–14 are items of the body as a representation of the Self. *Item SOBBS2 was subsequently excluded from the final validated structural model due to poor fit indices and redundancy. **sum score with SOBBS2. BSM = Body self-monitoring dimension; BRS = Body as a representation of the Self dimension; BS = Body shame dimension. For the calculation of the subscale sum score, NA = 1 was tolerated; for the calculation of the SOBBS scale sum score, NA = 2 was tolerated.

Table 4 presents Pearson correlations. Within the body self-monitoring dimension, correlations ranged from $r = .38$ to $r = .68$, indicating consistently strong relationships. SOBBS5 showed the highest correlations ($r \geq .60$ with over half of the items), while SOBBS6 had the weakest ($r < .50$ with all except SOBBS5). In the body as a representation of the Self dimension, correlations were generally weaker, ranging from $r = .31$ to $r = .65$ (with most values $r \leq .40$), which is similar to the pilot study (values ranged from $r = .25$ to $r = .55$, with most values $r < .36$). The strongest correlation was between SOBBS8 and SOBBS9, both of which also correlated moderately with SOBBS7. By contrast, items SOBBS11–13 had very low correlations with items from the self-monitoring dimension ($r < .20$), especially with SOBBS11

($r = .03$). This pattern was also observed in the pilot study. Unexpectedly, SOBBS8 showed relatively high correlations with items from the self-monitoring dimension, suggesting potential cross-loading.

Table 4

Correlation matrix of SOBBS items

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	---													
2	.47	---												
3	.46	.46	---											
4	.45	.60	.50	---										
5	.68	.50	.60	.62	---									
6	.43	.38	.42	.46	.57	---								
7	.57	.48	.49	.51	.69	.49	---							
8	.32	.39	.32	.36	.39	.36	.46	---						
9	.28	.31	.25	.30	.34	.29	.40	.65	---					
10	.24	.22	.16	.19	.22	.16	.29	.53	.59	---				
11	.21	.16	.03	.08	.12	.10	.21	.33	.41	.50	---			
12	.17	.18	.12	.17	.21	.18	.22	.37	.37	.40	.42	---		
13	.16	.22	.19	.17	.19	.16	.23	.37	.38	.39	.31	.32	---	
14	.24	.27	.26	.28	.34	.31	.35	.42	.41	.37	.33	.42	.35	---

Notes: All correlations are $p < .01$, except for the correlation between 11-3 and 11-4. Items 1–7 are items of the body self-monitoring dimension; Items 8–14 are items of the body as a representation of the Self.

SOBBS Item Analysis

Table 5 presents the item analysis statistics and internal consistency values. For the body self-monitoring dimension, popularity values ranged from moderately difficult to easy, $p = [.40, .70]$. All items had very good discriminatory power ($ULI > .40$) and a high correlation with the total SOBBS score, excluding the item in question ($r > .50$). For the body as a representation of the Self dimension, there was a general trend towards a higher level of disagreement, as all items had popularity values of $p < .30$. For SOBBS10 and SOBBS11, the popularity value was even more extreme, at $p \leq .20$. The floor effect was reflected in the discriminatory function ($ULI \leq .20$). Items SOBBS10 and SOBBS11 had the weakest discriminatory value ($ULI < .05$). When correlating items with a total score that does not include

the item in question, three items (specifically SOBBS11, SOBBS12, and SOBBS13) had a correlation of $r \leq .40$, which is relatively low in the context of the other SOBBS scale results.

Both subscales and the overall SOBBS score showed very good internal consistency, which is in line with Hypothesis 3 (see Table 5).

Table 5

Item analysis statistics and internal consistency values of the SOBBS scale

	Item	p	ULI	r'	ω'	α'	α	ω_t
SOBBS							.88; [.87, .90]	.91; [.89, .92]
SOBBS_BSM	SOBBS1	.62	.52	.60	.90	.87	.88; [.87, .89]	.88; [.87, .90]
	SOBBS2*	.52	.48	.59	.90	.87		
	SOBBS3	.68	.44	.55	.91	.87		
	SOBBS4	.63	.53	.61	.90	.87		
	SOBBS5	.60	.65	.71	.90	.87		
	SOBBS6	.51	.48	.55	.91	.87		
	SOBBS7	.43	.50	.69	.90	.87		
SOBBS_BRS	SOBBS8	.28	.20	.64	.90	.87	.83; [.80, .85]	.83; [.80, .86]
	SOBBS9	.26	.14	.59	.90	.87		
	SOBBS10	.17	.04	.49	.90	.88		
	SOBBS11	.20	.04	.36	.91	.88		
	SOBBS12	.22	.09	.40	.91	.88		
	SOBBS13	.27	.10	.39	.91	.88		
	SOBBS14	.28	.19	.52	.91	.88		

Notes: BSM = Body self-monitoring dimension; BRS = Body as a representation of the Self dimension. 95% CI for reliability. p = item popularity; ULI = upper-lower index; r' = correlation of the item with the total scale score, excluding the item; ω' = McDonald's omega of the scale after excluding the item; α' = Cronbach's alpha of the scale after excluding the item. *Item SOBBS2 was subsequently excluded from the final validated structural model due to poor fit indices and redundancy.

Confirmatory Factor Analysis

Global indices of model fit were as follows: $\chi^2(76) = 292.755, p < .001, RMSEA = .072, 90\% CI [.064, .081], SRMR = .054, CFI = .930, BIC = 18321$. Although the observed CFI, RMSEA, and SRMR met our originally pre-registered criterion ($CFI > .90; RMSEA \leq .08, SRMR \leq .08$), the overall fit failed to meet the tailored dynamic cutoff derived for this model ($CFI \geq .947, RMSEA \leq .068, SRMR \leq .054$), indicating that the initial model structure was not

fully consistent with the data. Comparatively, the final model in the Main Study exhibited superior fit indices relative to the Pilot Study baseline (see Table 6). At the residual matrix level, out of 91 possible residual covariances, 10 had a value of $r \geq |.10|$. SOBBS2, SOBBS8, SOBBS11, and SOBBS14 showed the highest degree of non-conformity within the data (see Table A2 in Appendix A). These same items were also problematic in the pilot. The standardized factor loadings of all items were $\lambda \geq .50$, with the highest value for SOBBS5 at $\lambda = .88$ (see Supplementary Material: Figures and Tables). Conversely, the lowest values were seen in SOBBS11–14, where the values ranged from $\lambda = [.52, .57]$. The individual factors correlate with each other at a value of $r = .52$, in line with Hypothesis 2. Despite the good values of the standardized factor loadings, however, a two-factor structure of the SOBBS scale was not supported due to the unacceptable model fit at both the local and global levels (Hypothesis 1).

Table 6

Global fit indices of the tested models

	χ^2	RMSEA	SRMR	CFI	BIC
Pilot model	569.25*	.083	.065	.903	---**
Main model	292.76*	.072	.054	.930	18321
Modified model	210.40*	.065	.053	.948	16825

Notes: * $p < .001$. ** Due to the different sample, it is not appropriate to compare the model using the BIC value. Pilot model and Main model $df = 76$; Modified model (without SOBBS2) $df = 64$. RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual; BIC = Bayesian information criterion.

Several items exhibited psychometric limitations but were retained due to their theoretical relevance. Specifically, SOBBS10 and SOBBS11 demonstrated low discriminative ability and reduced variance, likely driven by a floor effect. Similarly, Items SOBBS8 and SOBBS14 showed signs of local misfit and potential cross-loadings in the residual and correlation matrices. However, given their importance for content validity and the lack of strong theoretical justification for reassignment, no further model modifications were made for these items.

SOBBS2 also showed systematic misfit in the residual matrix, particularly with SOBBS4 ($r = .28$ in the pilot; $r = .19$ in the main study), which was further supported by the highest Modification Index (MI = 50.71) and substantial Expected Parameter Change (EPC = 0.24). While SOBBS4 captures the anticipatory monitoring of appearance in clothing (i.e., *I consider how my body will look to others in clothing...*), SOBBS2 reflects behavior (i.e., *I choose clothes...*), which may overlap with unrelated constructs, like fashion preference. Given the conceptual redundancy and weaker psychometric properties of SOBBS2 (i.e., lower discrimination, item-total correlation, and factor loading), SOBBS2 was removed.

Modified Model

As a next step, the modified 13-item model of the SOBBS, with the exclusion of the SOBBS2 item, was tested. The global model fit indices showed a substantial improvement: $\chi^2(64) = 210.403$, $p < .001$, RMSEA = .065, 90% CI [.055, .074], SRMR = .053, CFI = .948, BIC = 16825 (see Table 6). Crucially, unlike the initial model, this modified version successfully met the tailored dynamic fit cutoffs (CFI $\geq .942$, RMSEA $\leq .073$, SRMR $\leq .056$). Furthermore, the decrease in the BIC value ($\Delta\text{BIC} = 1,496$) provided very strong evidence for the superiority of the modified model (Raftery, 1995). At the residual matrix level, improvements could be observed in two problematic values caused by SOBBS2. For the remaining items, the residual matrix values remained largely stable (see Table A3 in Appendix A). SOBBS8, SOBBS11, and SOBBS14 remained the most problematic in the model, as in the pilot and main studies. However, their limitations were not considered to be significant enough to require an immediate revision of the model. The standardized factor loadings of the items in the body self-monitoring dimension remained essentially unchanged (see Supplementary Material: Figures and Tables). Overall, based on the global and local indicators of model fit with the data, the hypothesis of a two-factor structure of the SOBBS, without the SOBBS2 item, was supported (Hypothesis 1). The two SOBBS factors correlated at $r = .51$, in line with

Hypothesis 2. Internal consistency, after removing SOBBS2, met the expected threshold (Hypothesis 3): $\alpha = .87$, $\omega_t = .90$ for the total scale; $\alpha = .87$, $\omega_t = .87$ for body self-monitoring; and $\alpha = .83$, $\omega_t = .83$ for body as a representation of the Self.

Concurrent Validity

With the modified SOBBS scale (without item SOBBS2), the SOBBS and OBC body self-monitoring subscales correlated at $r = .70$, 95% CI [.65, .75], supporting Hypothesis 5. The correlation between the OBC body self-monitoring and the SOBBS body as a representation of the Self dimension was $r = .57$, 95% CI [.50, .63], also consistent with Hypothesis 6. However, the correlation between the total SOBBS score and the OBC body shame subscale exceeded the expected range, $r = .62$, 95% CI [.56, .67], without support for Hypothesis 7. The assumption of linearity was met for all tested relationships as indicated by scatterplots. Detailed correlation coefficients are presented in Table 7.

Table 7

Correlation matrix of sum scores

	SOBBS*	SOBBS_BSM*	SOBBS_BRS	OBC_BSM	OBC_BS
SOBBS*	---				
SOBBS_BSM*	.88; [.86, .90]	---			
SOBBS_BRS	.81; [.78, .84]	.44; [.36, .50]	---		
OBC_BSM	.70; [.65, .74]	.70; [.65, .75]	.44; [.36, .50]	---	
OBC_BS	.62; [.56, .67]	.56; [.49, .62]	.48; [.41, .48]	.56; [.49, .62]	---

Notes: *Sum score without item SOBBS2. BSM = Body self-monitoring dimension, BRS = Body as a representation of the Self dimension, BS = Body shame dimension. All values $p < .001$. 95% CI for r .

Invariance Testing

Invariance testing for the modified 13-item model supported invariance across genders at all three levels (see Table 8). First, the metric model showed negligible changes in fit indices compared to the configural model ($\Delta CFI = .000$, $\Delta SRMR = .006$). This was supported by $RMSEA_D = .002$. Subsequently, the scalar model was tested against the metric model. While

Δ CFI = $-.009$ approached the recommended cutoff (Chen, 2007), it remained within the acceptable range. Crucially, the robust analysis yielded an $RMSEA_D = .067$, which is well below the $.080$ threshold for acceptable fit (Savalei et al., 2024). The decreasing BIC values further supported model parsimony. Consequently, scalar invariance was established, justifying latent mean comparisons between men and women. This finding was in line with Hypothesis 4.

Table 8

Invariance of the SOBBS scale between male and female genders in the main study

	χ^2	RMSEA	RMSEA _D	CFI	Δ CFI	SRMR	Δ SRMR	BIC
Configural model	288.242*	.068		.942		0.060		16756
Metric model	299.265*	.065	.002	.942	.000	0.066	.006	16698
Scalar model	336.611*	.068	.067	.933	$-.009$	0.066	.000	16666

Notes: * $p < .001$. Configural model = baseline model, same factor structure ($df = 128$); Metric model = additionally fixed unstandardized factors ($df = 139$); Scalar model = additionally fixed intercepts ($df = 150$). $RMSEA_D$ = root mean square error of approximation difference; CFI = comparative fit index; SRMR = standardized root mean square residual; BIC = Bayesian information criterion. Δ = difference in the absolute value of the index in comparison to the previous model.

Difference in Self-Objectification Between Women and Men

Using the sum score of the modified 13-item SOBBS, women ($M = 37.00$) showed significantly higher self-objectification than men ($M = 34.85$), $t(500) = 2.16$, $p = .031$, $d = 0.22$, 95% CI [0.02, 0.42]. Although the result was in the expected direction, the effect size was smaller than hypothesized (Hypothesis 8).

Beyond pre-registered analyses, we conducted exploratory t -tests for each modified SOBBS dimension. Results showed that women ($M = 20.43$) reported higher body self-monitoring than men ($M = 17.97$), $t(537) = 4.89$, $p < .001$, $d = 0.48$, 95% CI [0.28, 0.67]. However, the dimension of the body as a representation of the Self did not differ significantly across genders ($M_{women} = 13.40$ and $M_{men} = 13.87$), $t(507) = -1.08$, $p = .282$, $d = -0.11$, 95% CI [-0.31, 0.09].

Discussion

Grounded in Objectification Theory (Fredrickson & Roberts, 1997), this study validated the Self-Objectification Beliefs and Behaviors Scale (SOBBS) for the Czech context. A modified 13-item Czech version of the SOBBS (excluding SOBBS2) was translated and adopted, and it demonstrated a two-factor structure with satisfactory model fit verified by dynamic fit indices, strong internal consistency, and evidence of concurrent validity, making it suitable for future research in the Czech context.

Based on the pilot and the main analysis results, the two-factor model of the initially adapted Czech version of the SOBBS failed to meet the tailored Dynamic Fit Index (DFI) cutoffs derived for our specific model characteristics (McNeish, 2023). This finding contrasts with previous validation studies from China, the United States, the United Kingdom, and Brazil, supporting the original structure (Almeida et al., 2024; Cascalheira et al., 2022; Hu et al., 2025; Lang & Ye, 2021; Lindner and Tantleff-Dunn, 2017). However, conclusions in these studies were primarily based on fixed cut-off criteria (e.g., Hu & Bentler, 1999). Recent methodological research suggests that fixed cutoffs do not generalize well across different model types and data patterns, potentially leading to inaccurate acceptances of mis-specified models (McNeish, 2023). By employing DFI and rigorously assessing local fit (Kline, 2023), our study offers a more precise evaluation of the SOBBS's internal structure, detecting inconsistencies that generalized benchmarks might overlook.

SOBBS2 was identified as potentially problematic, showing elevated residual covariance with SOBBS4. The shared variance between these items, unexplained by the self-objectification factor, was likely caused by overlapping situational framing, where both referred to clothing choices and appearance evaluation. SOBBS2 (i.e., *I choose specific clothing or accessories based on how they make my body appear to others*) seemed redundant, because

SOBBS4 covered very similar content (i.e., *I consider how my body will look to others in the clothing I am wearing*). In addition, SOBBS4 referred directly to body self-monitoring, whereas SOBBS2 referred to it rather indirectly and had a high potential to cover irrelevant content (e.g., fashion preferences). The modified 13-item model, without SOBBS2, comprising body self-monitoring and body as a representation of the Self dimensions, showed a good fit to the data and a very good internal consistency for both the overall scale and each subscale.

The body as a representation of the Self dimension proved to be quite problematic in many respects. A relatively significant floor effect was observed, particularly for SOBBS10 and SOBBS11. This likely contributed to lower item popularity, reduced discriminatory power, weaker item-total correlations, and lower standardized factor loadings. For these reasons, Items 10 and 11 should be considered to include less extreme wording that does not incline towards excessive disagreement. We would suggest reformulating SOBBS10 for further research to wording: *I feel that my appearance often reflects who I am more than my intellect* (from the original wording: *My physical appearance says more about who I am than my intellect*). We believe that adding the subjective assessment “I feel” instead of a general statement and the time anchor “often” will help mitigate the floor effect. In a similar vein, we propose the following wording for SOBBS11: *I often feel that my appearance reflects who I am more than my personality* (from the original wording: *My physical appearance is more important than my personality*). Compared to SOBBS2, SOBBS10 and SOBBS11 convey unique and construct-relevant content, so their exclusion is not recommended. In validation studies that report item-level descriptive statistics (Almeida et al., 2024; Cascalheira et al., 2022; Lang & Ye, 2021), the items in the body-as-Self-representation dimension also showed a floor effect, though less pronounced than in the Czech sample. Besides wording adjustments, a more in-depth revision of the body-as-Self-representation dimension could be considered, including the proposal of alternative items that would better meet the psychometric requirements. Although these

suggestions emerged from the Czech validation, other national adaptations are encouraged to consider whether slight wording changes might help reduce floor effects and improve model fit.

Measurement Invariance and Gender Differences

The results of the main study (using the modified 13-item SOBBS) supported scalar invariance between women and men. Measurement invariance between genders was also recently supported by Hu et al. (2025). Overall, the results from the main study indicate that the Czech 13-item SOBBS can be used to compare both its associations with other constructs and their average levels of self-objectification across women and men.

Further, women exhibited higher levels of self-objectification (i.e., modified 13-item SOBBS sum score) than men, though with a lower effect size than expected. A closer look at the individual dimensions revealed a more interesting picture. While the difference between genders was significant with a medium effect size in the body self-monitoring dimension, the body as a representation of the Self dimension did not show a significant difference, and the effect size was small and negative (i.e., slightly higher scores for men). This result is partly consistent with previous findings (Hu et al., 2025), where the self-monitoring dimension also scored significantly higher for women, while the difference in the body-as-Self-representation dimension was insignificant. Thus, gender differences in self-objectification may primarily manifest at the behavioral level (i.e., the extent to which people monitor their bodies), but not necessarily in the cognitive integration of the body into the self-concept. Women's tendency to monitor their bodies to a greater extent than men is in line with the Objectification Theory (Fredrickson & Roberts, 1997), which assumes that women are led to a higher level of behavior oriented toward monitoring their appearance because of more frequent experiences with sexual objectification.

One possible explanation for the absence of differences in the cognitive dimension (i.e., body as a representation of the Self) is that recent studies highlight that males are also negatively affected by appearance-related pressures (Calogero, 2011; Strubel & Petrie, 2017). Men, like women, may perceive their bodies as an important part of their identity and value, even though these tendencies may not be as explicit or behaviorally manifested, because they are more influenced by traditional gender roles. Another possible reason may be the floor effect observed in several items and lower discriminatory power. It is also possible that differences between women and men are distorted to some extent by different interpretations of the items. In the SOQ and OBC scales, it has been pointed out several times that women and men respond differently to some items depending on cultural stereotypes and values (e.g., due to different emphasis on appearance; Hazzard et al., 2022; Chen & Russo, 2010). The question remains whether this is also the case for the SOBBS scale. Further research should focus on how participants from different gender groups interpret SOBBS items through deeper validation of response processes. Helpful guidance can be found in recommendations by Zumbo and Hubley (2017), who emphasize the use of cognitive interviewing and mixed-method approaches to examine how respondents understand, interpret, and process questionnaire items. Overall, the results point to the importance of assessing the individual dimensions of the SOBBS separately and open up space for further research that focuses on gender differences in various aspects of self-objectification.

Concurrent Validity

The body self-monitoring dimension of self-objectification measured by the modified 13-item SOBBS strongly correlated with the body self-monitoring dimension measured by the OBCS. Despite differing operationalizations, these dimensions reflect a similar aspect of self-objectification – monitoring the body from an external perspective (Fredrickson & Roberts,

1997). The result was consistent with expectations and prior studies (Hu et al., 2025; Lang & Ye, 2021; Linder & Tantleff-Dunn, 2017). We also examined the correlation between the SOBBS dimension of the body as a representation of the Self and OBC body self-monitoring. As expected, this relationship was weaker, reflecting theoretical distinctions between the two constructs. This result aligns with previous findings (Hu et al., 2025; Lang & Ye, 2021), although the original study reported a noticeably weaker association (Lindner & Tantleff-Dunn, 2017). This discrepancy may be due to sample characteristics or cultural differences.

However, the results showed a stronger-than-anticipated positive correlation between self-objectification, indicated by the total SOBBS score, and body shame. Although the hypothesis was not supported within the stated range, the result itself may not be inconsistent with the theoretical framework, but rather suggests a higher degree of interconnection between these two dimensions than originally expected. In the original validation study (Lindner & Tantleff-Dunn, 2017), a strong positive relationship was also found between body shame and the overall SOBBS score. This strong association is likely attributable to the specific item content of the SOBBS, particularly within the body-as-Self-representation dimension. Lindner and Tantleff-Dunn (2017) show that some SOBBS items (especially from the body as a representation of the Self dimension) emphasize the connection between the body and personal values, which may be closely related to emotional consequences. Its items reflect not only how one perceives one's own body, but also its evaluation in terms of personal value, which may evoke more intense emotional responses associated with body shame. A stronger relationship between these constructs may thus suggest that the emotional component of self-objectification (e.g., body shame) may not be solely a consequence of a cognitive-behavioral process, but that these components significantly overlap (Maheux et al., 2021; Moradi & Huang, 2008). This result points to a possible need to revise assumptions about the extent to which body shame is linked to the construct of self-objectification and may lead to further theoretical and empirical

work in this area. A summary of the results regarding the tested hypotheses is presented in Table 9.

Table 9

A recapitulation of results

	<i>Hypothesis</i>	<i>Result</i>
H1	<i>The SOBBS scale has a two-factor structure (i.e., body self-monitoring and the body as a representation of the Self).</i>	<i>Not supported for the main model Supported for the modified model</i>
H2	<i>The factors on the SOBBS scale (i.e., body self-monitoring and body as a representation of the Self) have a moderate to high positive association with each other; $r = [.45, .65]$.</i>	<i>Supported</i>
H3	<i>The SOBBS scale shows acceptable reliability for the total method and individual subscales; $\alpha > .70$ and $\omega > .70$.</i>	<i>Supported</i>
H4	<i>The SOBBS scale is invariant between the male and female genders on the scalar level.</i>	<i>Supported</i>
H5	<i>The relationship between the body self-monitoring subscale (OBC) and the body self-monitoring subscale (SOBBS) is strong and positive; $r = [.60, .80]$.</i>	<i>Supported</i>
H6	<i>The relationship between the body self-monitoring subscale (OBC) and the body as a representation of the Self subscale (SOBBS) is moderately to very strong and positive; $r = [.40, .60]$.</i>	<i>Supported</i>
H7	<i>The relationship between the body shame subscale (OBC) and the total score of the SOBBS scale is moderately strong and positive; $r = [.30, .50]$.</i>	<i>Not supported</i>
H8	<i>The female gender has a significantly higher self-objectification value than the male gender; $d = [0.40, 0.60]$.</i>	<i>Not supported</i>

Summary of Validity Evidence of the SOBBS in the Czech Context

Within Messick's (1995) unified validity framework, evidence based on content (derived from the rigorous adaptation) and response processes (via cognitive interviews) suggests that the Czech items successfully operationalize the theoretical construct of self-

objectification. Respondents generally interpreted items in line with the theoretical framework, although the body-as-Self-representation dimension showed susceptibility to social desirability (particularly items SOBBS10 and SOBBS11), suggesting that scores on this subscale should be interpreted with awareness of this potential bias. Second, regarding internal structure, the modified two-factor model demonstrated robust fit. Crucially, the establishment of scalar invariance supports the validity of interpreting latent mean differences between women and men, which is a key enhancement over previous adaptations. However, we acknowledge that the body as a representation of the Self dimension exhibits lower psychometric stability, representing an area for future refinement. Third, relations to other variables substantiated the constructive interpretation of the scores, with strong associations to OBCS dimensions supporting convergent validity.

Taken together, these strands of empirical evidence support the adequacy of interpreting Czech modified 13-item SOBBS scores as measures of individual differences in self-objectification for research purposes. While the scale shows promise for identifying maladaptive body-monitoring behaviors, current evidence does not yet support its use for individual clinical diagnostics without further validation in clinical samples.

Limitations and Future Research

It is important to acknowledge several limitations when interpreting the results. First, the non-random selection of participants obtained through an online questionnaire may have led to selection bias. Consequently, the results cannot be considered fully generalizable to the entire population, especially in terms of representativeness regarding age, education, or socioeconomic status. This selection method also affected the gender distribution, as women were significantly overrepresented. However, it is worth noting the positive shift from previous studies, in which respondents were often exclusively female, thus neglecting the role of men in

self-objectification research for a long time. Future research should focus on people with non-binary gender identities, greater age diversity, and a broader spectrum of sexual orientations.

Second, procedural limitations must be noted. While the main hypotheses and analysis plan were preregistered, the specific translation and cultural adaptation procedures were not explicitly preregistered, which limits the transparency of the initial adaptation phase. To mitigate this limitation, we prioritized comprehensive reporting and provided a detailed description of the entire multi-stage adaptation protocol in the Method section to allow for full scrutiny of our decisions. Furthermore, regarding the web-based nature of data collection, the study lacked advanced quality control measures (e.g., rigorous attention checks or response time filters) to detect potential careless responding or automated bot traffic, which is an increasing concern in online research (Gottfried, 2024).

Third, the study utilized a cross-sectional design. Due to the one-time data collection, it was not possible to track the stability of the measurements over time or the causal relationships between self-objectification and other constructs. For a deeper understanding, it would be useful to use a longitudinal design in the future.

Finally, regarding psychometric refinement, future research should extend beyond traditional factor analytic methods to verify the scale's dimensionality and item quality. Specifically, applying network psychometric methods, such as Exploratory Graph Analysis (EGA) integrated with Unique Variable Analysis (UVA), would be valuable for identifying potential item redundancies (Golino et al., 2020). Employing these techniques on new datasets would allow for rigorous cross-validation of the internal structure and help determine if a more parsimonious version of the scale is warranted. Moreover, in light of recent concerns regarding the fragmentation of psychological science and the proliferation of redundant measures (Anvari et al., 2025), future studies should rigorously examine the empirical overlap between the

SOBBS and other established instruments measuring body image and self-objectification. Evaluating the commensurability of the SOBBS with related scales will help clarify whether it captures unique variance or if it contributes to the "jingle-jangle" fallacy within the field.

Conclusions

This study translated, adapted, and examined for evidence of validity and internal consistency the Self-Objectification Beliefs and Behaviors Scale (SOBBS) for the Czech context. The modified 13-item version of the scale (excluding SOBBS2) demonstrated satisfactory model fit supported by dynamic fit indices, strong internal consistency, and evidence supporting the validity of score interpretations based on Messick's theoretical framework (1995). The two-dimensional structure of the scale (i.e., body self-monitoring and body as a representation of the Self) was supported. The scale was shown to be invariant on the scalar level across female and male gender groups in the main study, allowing for meaningful comparisons. Notably, gender differences were found only in the body self-monitoring dimension, underscoring the need to examine specific aspects of self-objectification separately. While the body as a representation of the Self dimension showed some psychometric limitations, the Czech 13-item version of the SOBBS demonstrates satisfactory psychometric properties and represents a useful scale for future research. Overall, future studies should aim to refine the body-as-Self-representation dimension, explain the position of the body shame construct within the self-objectification theory framework, and further explore item interpretation across gender identities to enhance the cross-cultural applicability of the scale.

Author Contributions

Jan Pavlík: conceptualization–lead, data curation–lead, formal analysis–lead, methodology–lead, investigation–lead, writing original draft–lead, writing review & editing–lead, validation–lead, and project administration–lead;

Nikol Kvardová: conceptualization–supporting, methodology–supporting, supervision–lead, and writing review & editing–supporting;

Petr Palíšek: conceptualization–supporting, methodology–supporting, supervision–supporting, and writing review & editing–supporting.

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selectively reported, and that the results have been interpreted objectively, including the discussion of findings that may not align with the authors' initial expectations. **Open Science**

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Appendix A: Residual Matrices

Table A1

Residual matrix of the pilot study model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	---													
2	.01	---												
3	.07	-.05	---											
4	-.04	.28	-.07	---										
5	.05	-.09	.01	-.01	---									
6	-.04	-.05	-.01	.03	.00	---								
7	-.03	-.10	.06	-.08	.03	.04	---							
8	.06	.32	.20	.20	.28	.21	.27	---						
9	.01	.08	.06	-.02	.02	-.04	.08	.05	---					
10	-.16	.02	-.14	-.10	-.14	-.12	-.06	-.01	.05	---				
11	-.18	-.02	-.16	-.09	-.19	-.15	-.20	-.07	-.04	.06	---			
12	.00	.12	.01	-.02	.03	-.03	.00	-.04	.09	.06	.12	---		
13	-.09	.07	-.02	-.01	-.04	-.01	.01	-.06	-.08	.04	.05	.06	---	
14	.15	.17	.08	.13	.07	.06	.07	-.07	.00	-.06	-.01	.17	.05	---

Note: Values $r \geq |.10|$ are marked in bold.

Table A2

Residual matrix of the main study model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	---													
2	.01	---												
3	-.03	.04	---											
4	-.08	.19	.03	---										
5	.05	-.09	.01	-.01	---									
6	-.04	-.03	.00	.02	.01	---								
7	.01	-.02	-.03	-.05	.01	.00	---							
8	.03	.16	.06	.08	.05	.13	.17	---						
9	-.02	.04	-.03	.01	-.03	.02	.07	.05	---					
10	-.03	-.03	-.08	-.07	-.10	-.07	-.01	-.01	.01	---				
11	.01	-.02	-.14	-.11	-.12	-.08	-.01	-.07	-.02	.06	---			
12	-.04	.00	-.06	-.03	-.04	.00	.00	-.04	-.04	.00	.08	---		
13	-.03	.05	.01	-.01	-.05	-.01	.02	-.03	-.02	.01	.01	.03	---	
14	.01	.08	.06	.07	.09	.13	.13	-.02	-.04	-.03	.01	.09	.05	---

Note: Values $r \geq |.10|$ are marked in bold.

Table A3*Residual matrix of the modified model*

	1	3	4	5	6	7	8	9	10	11	12	13	14
1	---												
3	-.02	---											
4	-.05	.06	---										
5	.03	.00	.00	---									
6	-.04	.00	.04	.00	---								
7	.01	-.02	-.02	-.01	.01	---							
8	.04	.07	.11	.05	.14	.18	---						
9	-.02	-.02	.03	-.03	.03	.08	.05	---					
10	-.03	-.07	-.05	-.10	-.06	.00	-.01	.01	---				
11	.01	-.13	-.09	-.12	-.07	-.01	-.07	-.02	.05	---			
12	-.03	-.06	-.02	-.04	.00	.01	-.04	-.04	.00	.07	---		
13	-.03	.02	.00	-.05	-.01	.03	-.03	-.02	.01	.01	.03	---	
14	.02	.07	.09	.09	.14	.14	-.02	-.04	-.03	.01	.09	.05	---

Note: Values $r \geq |.10|$ are marked in bold.

Appendix B

Appendix B1: Detailed Deviations from Pre-Registration

We acknowledge several deviations from the original pre-registration plan (<https://osf.io/cua7k>), which evolved during the research process to enhance methodological rigor. First, a pilot study was not originally planned but was conducted using available secondary data to preliminarily assess the scale's structure before the main study analysis. Second, while the pre-registration specified fixed fit index cutoffs based on Awang (2012) and Byrne (1994; e.g., CFI > .90), we adopted the Dynamic Fit Index (DFI) framework (McNeish, 2023). This decision was made based on recent methodological recommendations to ensure a more robust evaluation that accounts for the specific parameters of our model, rather than relying on generalized benchmarks. Third, regarding measurement invariance testing, we expanded upon the pre-registered reliance on Chen's (2007) criteria (e.g., ΔCFI). We adopted

a hybrid approach by incorporating the robust RMSEA of the difference test (RMSEA_D) proposed by Savalei et al. (2024) to address the known limitations of traditional fit index differences in nested model comparisons. Fourth, although the standard Maximum Likelihood (ML) estimator was pre-registered, we employed Maximum Likelihood with Robust standard errors (MLR). This deviation was made to strictly account for potential non-normality in the data. While categorical estimators are sometimes preferred for ordinal data, we followed recommendations by Rhemtulla et al. (2012) and Li (2016), which support the use of MLR for 5-point scales as it provides robust estimates comparable to categorical methods while allowing for the superior handling of missing data via FIML. Fifth, the handling of missing data was not explicitly pre-registered; we opted for Full Information Maximum Likelihood (FIML). Sixth, we included item analysis (e.g., item popularity, discrimination) beyond the pre-registered scope to provide a more granular insight into the psychometric properties of the Czech adaptation.

Additionally, to improve the logical flow of the manuscript and adhere to standard psychometric reporting practices, we reordered the hypotheses. While the pre-registration listed the gender comparison as the first hypothesis (H1), we present the validation of internal structure (originally H2) and measurement invariance first, as establishing psychometric validity is a prerequisite for testing group differences. Next, we applied a specific inclusion criterion not originally pre-registered: participants were required to complete at least 50% of the first SOBBS dimension. This low-threshold criterion was established to ensure that respondents provided at least minimal data necessary for latent factor estimation, while still retaining the vast majority of incomplete responses handled by FIML.

Furthermore, we performed several unplanned analytical steps. Specifically, we conducted a CFA on a modified SOBBS model, excluding item SOBBS2 due to the original model's misfit. We further examined concurrent validity with the modified version of the

scale and conducted an independent samples *t*-test to compare male and female participants with the modified SOBBS sum score, instead of the original version. Finally, beyond pre-registered hypotheses, we exploratively tested gender differences for each SOBBS dimension separately, rather than focusing solely on the total score.

Appendix B2: Used R Packages

The required sample size was estimated using the *semPower* package (Moshagen & Bader, 2024). Data import, and manipulation were conducted using *haven* (Wickham et al., 2023), *dplyr* (Wickham et al., 2023), *tidyr* (Wickham et al., 2024), and *reshape2* (Wickham, 2007). We used the *lavaan* package (Rosseel, 2012) to perform CFA and measurement invariance testing, and the *dynamic* package (Wolf & McNeish, 2023) to derive dynamic fit index cutoffs, while *semPlot* (Epskamp, 2022) and *corrplot* (Wei & Simko, 2024) were utilized for visualizing factor structures and correlations. Reliability estimates (Cronbach's alpha, McDonald's omega) and descriptive statistics were computed using the *semTools* (Jorgensen et al., 2025) and *psych* (Revelle, 2024) packages. Finally, assumption checks and group comparisons were performed using *rstatix* (Kassambara, 2023) and visualized with *ggplot2* (Wickham, 2016).