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Counter-Stereotypical Career-Related Media Content and Adolescents' Professional Sexism: A Longitudinal Study on Woman Boss Television Series and Social Media Posts

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Conflict of Interest: The authors declare that they have no conflict of interest.

Funding details: This work was supported by the Research Foundation Flanders (FWO-Vlaanderen) under Grant 11G0220N.

Abstract

Woman boss series and woman boss posts on social media that portray women in stereotypically male professions have attracted scholarly attention. The positive effects of this content on adolescents over time are unclear. This study helped fill this gap by examining the within-person reciprocal relations between exposure to woman boss series and posts and adolescents' beliefs about the male vs. female division of professional tasks according to traditional gender stereotypes (which was labeled as professional sexism). We examined the mediating role of the perceived utility of such content and the moderating roles of hypergender identity and knowing women in counter-stereotypical professions offline. A total of 1,286 late adolescents (M_{age} = 18.33, *SD* = 0.64) participated in a three-wave longitudinal study with a four-month time interval. The findings indicated positive but inconsistent within-person associations between professional sexism and the perceived utility of woman boss series. The results supported the moderating role of knowing women in atypical professions; that is, the perceived utility of woman boss posts on social media in Wave 2 related to professional sexism in Wave 3. The direction of the association changed when considering the extent to which adolescents knew women in atypical professions. Implications for how parents, teachers, and academic school counselors may talk with adolescents about women who are portrayed in atypical occupations in TV series and on social media are discussed.

Keywords: social media, occupation gender stereotypes, gender identity, adolescence, television, woman boss, professional sexism, longitudinal, counter-stereotypical media

Counter-Stereotypical Career-Related Media Content and Adolescents' Professional Sexism: A Longitudinal Study of Woman Boss Television Series and Social Media Posts Despite efforts to promote an equal balance of men and women in professions, such as the European Commission's engagement plan for gender equality that aims to create more equality in the labor market (European Commission, 2017) the underrepresentation of women in stereotypically male professions (e.g., STEM, management) remains problematic (U.S. Bureau of Labor Statistics, 2022). This problem is rooted in childhood, as many girls do not even consider stereotypically male jobs (Riegle-Crumb et al., 2011), and appears to continue during late adolescence, when teenagers begin choosing the careers they hope to pursue (Vondracek & Porfeli, 2006). For instance, enrollment numbers of students in college reveal that women are still underrepresented in male-dominated fields of study such as information and communication technology (ICT), with only 5% enrollment in some cases (Ministerie van onderwijs en vorming, 2021).

Professional-related sexist attitudes or "professional sexism" are partly responsible for such gendered career preferences among girls (He & Zhou, 2018). In the present study, gender does not refer to a person's biological sex, but rather to a construct within a specific culture in which people associate certain behaviors, feelings, and attitudes with an individual's biological sex (American Psychological Association, 2020). We refer to sex when we describe participants' biological sex as assigned at birth (American Psychological Association, 2020). In our study, we build on gender schema theory (Bem, 1981a) and professional sexism which include positive vs. negative beliefs about structuring particular professional tasks as being reserved for men vs. women according to traditional gender stereotypes. Professional sexism is determinative for individuals' gender-stereotypical career aspirations and choices (He & Zhou, 2018; Makarova et al., 2019) . Research has revealed

that professional sexism can be reduced by providing counter-stereotypical role models (Dasgupta & Asgari, 2004).

One source that may lower professional sexism levels among adolescents is the media because they can offer counter-stereotypicalrole models . In particular, so-called “woman boss” television series and “woman boss” posts on social media are known for portraying female role models in counter-stereotypical professions such as chief executive officers (CEOs) and police officers (Jacobs et al., 2015; Woolston, 2015). Such content may be inspirational for women to pursue atypical professions and aspire to high-status positions (Steinke et al., 2009). Research has shown that media, especially television series, can play a role in socializing beliefs about gender roles in the professional world (Bond, 2016; Levine & Hoffner, 2006). However, research on the empowering role that woman boss series and woman boss posts on social media can play in reducing adolescents’ professional sexism is largely lacking.

To address this gap, the present study examines the longitudinal relationships between exposure to woman boss series and posts and professional sexism among late adolescents. It contributes to the literature in different ways. By focusing on the potentially positive role of (social) media in professional sexism, the study adopts a positive framework. Moreover, it combines gender schema theory (Bem, 1981a) with research on professional beliefs (Ardies et al., 2021; Myers et al., 2011) and media effect models (Valkenburg & Peter, 2013) to obtain an in-depth understanding of how media and professional sexism are related to each other over time. A longitudinal design is adopted, which allows for employing the multiple group random intercept cross-lagged panel model (RI-CLPM) technique to distinguish between within- and between-person changes while also considering the moderating roles of hypergender identity and knowing women in counter-stereotypical professions in one’s offline environment (Mulder & Hamaker, 2021). Based on insights derived from the

differential susceptibility to media effects model (DSMM; Valkenburg & Peter, 2013), we investigate the perceived utility of woman boss content as a cognitive media response state that may mediate the relationships between exposure to woman boss media content and professional sexism. The insights gained may help us offer a better understanding of the underlying processes of such relationships.

Vocational Anticipatory Socialization in Late Adolescence

One key developmental task in adolescence is the cultivation of a vocational identity (Erickson 1968; Vondracek & Porfeli, 2006). This identity is partly developed through vocational anticipatory socialization , a socialization process through which individuals learn about the professional world from different socialization actors like family and work experience (Jablin, 2001; Myers et al., 2011). This socialization process gains importance by the end of adolescence when young people are graduating from high school and need to make choices about their future, such as higher education or a job (Vondracek & Porfeli, 2006).

For some individuals, this socialization process can sometimes be gendered when boys and girls receive different information regarding professions (Jahn & Myers, 2014; Myers et al., 2011). The gender schema theory (Bem, 1981a) explains this process by referring to individuals' gender schemas, which are "cognitive structures that organize an individual's gender-related knowledge, beliefs, attitudes, and preferences" (Liben & Signorella, 1993, p. 141). Socialization actors teach adolescents how gender is intertwined with particular professions. If these associations comply with gender stereotypes, such as the notion that men are competitive and analytical and thus more suitable for leadership positions and STEM professions, whereas women are nurturing and therefore more suitable for caring occupations, individuals can become more gender-driven in their beliefs about which professions are appropriate for different genders (Bem, 1981a).

Although some socialization actors still promote gender-stereotypical messages about professions (e.g., Sáinz et al., 2020), studies have also pointed to their role in distributing messages that run counter to gender stereotypes (Ardies et al., 2021; Myers et al., 2011). For instance, some parents encourage their children to pursue a counter-stereotypical profession (Jahn & Myers, 2014). Other research reports that individuals pursuing counter-stereotypical profession function as gender role models for adolescents (Buschor et al., 2014). One understudied source in which such counter-stereotypical role models can be found is social media, specifically woman boss television series and woman boss social media posts.

Woman Boss Content Consumption via Television Series and Social Media

Media are at the heart of adolescent lives, with more than 50% and 90% of adolescents watching television series and consuming social media daily or multiple times a week, respectively (mpfs, 2021; Vandendriessche et al., 2021). Television series and social media are two distinct media outlets that diverge significantly in terms of their characteristics. First, each has different production dynamics at play. Popular television series are produced by (large) companies that aim to attract a mass or at least sizable niche audiences by producing attractive storylines that reflect the societal norms and views dominant in the audience they target (Maes & Vandenbosch, 2022; te Walvaart et al., 2018).

Social media content, by contrast, is produced by users themselves, making them both creators and consumers of such content (Perloff, 2014). In terms of profession-related content, adolescents may be especially exposed to such content while still in high school and therefore do not yet have a full-time job about which they can post. Such job-related posts can come from different types of socialization actors, including not only influencers, and celebrities, but also people in adolescents' own networks who have more typical jobs such as teachers (I. Vranken & Vandenbosch, 2022). These socialization actors can share textual information (e.g., captions) and visual information (e.g., pictures and videos) via social media's ephemeral and

persistent features (e.g., stories and timeline posts, respectively). Additionally, built-in features, such as likes and comments, allow social media users to actively engage with the content they consume (Perloff, 2014). Therefore, social media is considered a more interactive platform than traditional media outlets like television (Perloff, 2014).

Second, there are differences in how users watch television series and consume social media content. Adolescents can watch series on traditional television sets or streaming platforms. Recent numbers indicate that adolescents are especially prone to use streaming platforms like Netflix to consume media. For instance, 65% and 29% of adolescents watch videos via streaming platforms on a weekly and daily basis, respectively (De Marez et al., 2022). The existence of streaming platforms and their on-demand television counterparts mean that individuals can now watch series whenever they wish via different devices including television sets and digital devices such as smartphones, and tablets (Deloitte, 2017). Social media content, however, is generally accessed via smartphones (De Marez et al., 2022) and can be accessed anytime and anywhere (Perloff, 2014).

Third, the underlying motivations for consuming television series and social media content may differ (Pittman & Sheehan, 2015; I. Vranken & Vandenbosch, 2022). Users consume both television series and social media for entertainment purposes (Bossen & Kottasz, 2020; Papacharissi & Mendelson, 2007; I. Vranken & Vandenbosch, 2022), but social motivations such as surveilling and connecting with others are much more influential on the consumption of social media than television series (Bossen & Kottasz, 2020; I. Vranken & Vandenbosch, 2022).

The Content of Woman Boss Series and Social Media Posts

Despite their differences, both television series and social media can contain so-called woman boss content that includes information about the links between individuals' gender and their professions. This content provides an emancipatory view of women because it portrays

them in counter-stereotypical professions and positions (Jacobs et al., 2015; Woolston, 2015). As for television series, woman boss series is a specific subgenre on the landscape that may have emerged because television production companies craft storylines that follow current societal views and became more aware of counter-stereotypical views that media consumers find important (Maes & Vandenbosch, 2022). Indeed, studies reveal that more female characters have been portrayed in counter-stereotypical professions and positions throughout the years (DeTardo-Bora, 2009; Signorielli & Bacue, 1999). For instance, 14.3% and 25% of crime investigators and detectives, respectively, are women in popular fiction series, which is an overrepresentation of the number of women who do that work in real life (DeTardo-Bora, 2009). Other studies reveal that women are also portrayed more often in scientific jobs and management positions than occupy those same roles in actuality (Long et al., 2010; Warren et al., 2016). This kind of content contradicts the stereotype that success and certain professions and leadership positions are reserved for men (Schein, 2001). Although the general television landscape thus started to portray more women in counter-stereotypical professions and positions, woman boss series especially distinguish themselves by writing storylines around the lives of women in atypical professions and positions (Warren et al., 2016). The women in these series are the key characters and may therefore function as important role models for younger viewers (DeTardo-Bora, 2009; Lavigne, 2009; Warren et al., 2016).

Woman boss content is also found on social media. Research indicates that some social media users sometimes challenge dominant stereotypes by, for instance, highlighting that they are working in a counter-stereotypical profession (Kerr et al., 2020). When women post about working in stereotypically male professions, they may serve as role models for adolescents by sharing inspiring posts about their profession in which they highlight their abilities, power, and achievements (Alkhammash, 2019; Heizmann & Liu, 2022; Woolston, 2015). Such posts often contain woman boss hashtags, such as #WomeninSTEM (1.1 million posts) and #femaleCEO

(590,000 posts) (data from October 21, 2022; https://Instagram.com), which can be viewed when users actively search for those hashtags on social media.

Exposure to Woman Boss Media and Professional Sexism: A Reciprocal Model

Prior research has shown that consuming media that portrays men and women in stereotypical gender roles was positively related to children and adolescents' levels of professional sexism (Morgan, 1982; Bond, 2016; Wille et al., 2018). However, with mediated content, such as fiction series that portray women in atypical professions, studies have found that lower levels of professional sexism may occur after exposure (Miller & Reeves, 1976; O'Bryant & Corder-Bolz, 1978; Wroblewski &Huston , 1987). One admittedly older cross-sectional study indicated that viewing television series in which women were portrayed in a counter-stereotypical profession like police officer was positively related to being more accepting toward women in such professions and thus to lower levels of professional sexism (Miller & Reeves, 1976).

As previous research on the impact of counter-stereotypical professional portrayals is limited and often quite old (Miller & Reeves, 1976; O'Bryant & Corder-Bolz, 1978), it is unclear how and under which circumstances exposure to portrayals of women in atypical professions in the current media landscape can impact adolescents. More precisely, prior studies have focused on the effects of television content among non-adolescent groups (Bond, 2016) but have not considered late adolescents, an age group that is seeking to be informed about their options in the professional world and consume media as part of that information search (Levine & Hoffner, 2006; I. Vranken & Vandenbosch, 2022) to make a career choice (Vondracek & Porfeli, 2006). Additionally, such studies have only examined the relationships between professional sexism and counter-stereotypical job portrayals on television and not yet in social media (e.g., Miller & Reeves, 1976; Bond, 2016). Therefore, insights into the relationships between woman boss exposure and professional sexism that capture

contemporary adolescents' rich media use patterns remain lacking (Vandendriessche et al., 2021).

Lastly, prior research used cross-sectional designs (Miller & Reeves, 1976) or between-subject experiments (O'Bryant & Corder-Bolz, 1978) and therefore only provided support for the relationships between exposure to counter-stereotypical television series and individuals' professional sexism on a between-person level. Such associations consider the group means of a certain variable and investigate whether scoring below or above this group mean is also associated with higher or lower levels of an outcome variable between individuals (Hamaker et al., 2015). These between-person associations thus generally indicate whether individuals who watch woman boss series more often also report lower levels of professional sexism when compared to individuals who watch such series less frequently.

However, scholars have called for research that distinguishes between within- and between-person associations because it remains questionable whether results found on a between-person level will reliably translate into within-person associations (Orben et al., 2019), which are concerned with the changes that a given individual undergoes over time (Hamaker et al., 2015). Such associations can offer insights into whether exposure to woman boss series at one time point is related to an individual's level of professional sexism at a later time point. These within-person associations may provide a more nuanced view of how the relationships between media use and its outcomes differ by individual, because media effects are assumed to be person-specific (Beyens et al., 2020). Therefore, to draw valid conclusions on the effects of media on adolescents, within-person associations using longitudinal research designs should also be examined.

The interrelations between social media use and professional sexism can be explained by the DSMM, which maps different media effect theories into one comprehensive framework to stimulate theory-driven research in communication science (Valkenburg &

Peter, 2013). More precisely, the DSMM posits that media use may result in long-term within-person changes in individuals' cognition (Valkenburg & Peter, 2013). Gender schema theory (Bem, 1981a) helps understand how these changes evolve with respect to cognition regarding gender. As explained above, gender schema theory (Bem, 1981a) proposes gender schemas as a focal concept to understand how individuals structure the world and process information. Therefore, an adolescent who views content in television series and on social media that highlights women in counter-stereotypical professions and positions may be inclined to form gender schemas in line with these mediated messages. As such, adolescents' professional sexism can be expected to decrease. Research has also pointed to the relevance of repeated exposure because one-time exposure to counter-stereotypical media content about professions may not be sufficient to evoke counter-stereotypical gender schemas (Bond, 2016).

Moreover, gender schema theory denotes that individuals' gender schemas are guides that lead them to interact with content in line with their "cultural definitions of femaleness and maleness" (Bem, 1983, p. 605). In other words, individuals with high gender-stereotypical schemas are likely to seek out gender-stereotypical content, while the reverse is true for individuals with gender-balanced schemas. Therefore, it can be expected that adolescents with low levels of professional sexism are more likely to consume woman boss series and social media content. This reasoning coincides with the assumption of the DSMM on the reciprocal or "transactional" nature of media effects in which "outcomes of media use also influence media use" (Valkenburg & Peter, 2013, p. 224). Previous research has indeed indicated that adolescents with gender-stereotypical schemas frequently selected media showing individuals in gender-stereotypical professions (Wroblewski & Huston, 1987). Yet, we lack longitudinal research (1) testing one comprehensive model including media effects and media selection with regard to counter-stereotypical media portrayals and (2) testing

whether such links reinforce one another over time. Therefore, we propose a reinforcing process of woman boss (social) media content and professional sexism over time (Figures 1–2):

H1: Exposure to woman boss series (H1a)/woman boss posts on social media (H1b) is negatively related to professional sexism among late adolescents over time at the within-person level.

H2: Professional sexism is negatively related to exposure to woman boss series (H2a)/woman boss posts on social media (H2b) among late adolescents over time at the within-person level.

The Mediating Role of Perceived Utility

Another proposition of the DSMM (Valkenburg & Peter, 2013) is that response states may mediate the associations between media use and media responses. Therefore, the interrelations between exposure to woman boss content and professional sexism may be mediated by response states. One response state of particular importance when examining professional beliefs and adolescents may be "perceived utility." Based on Peter and Valkenburg's (2010) definition, perceived utility refers to a cognitive media response state in which users perceive media as a useful information source for the real world.

According to the DSMM (Valkenburg & Peter, 2013), the relationship between media use and cognitions can be explained by how extensively a user evaluates the content as useful for their life. The more a person consumes the media, the more that person is expected to comprehend media content as useful. In turn, the user will be more motivated to align his or her cognition with media content perceived as useful (Peter & Valkenburg, 2010). Studies have provided longitudinal evidence for the mediating role of perceived utility between media use and media outcomes over time in other media effect domains such as sexually explicit media (Peter & Valkenburg, 2010; Vandenbosch et al., 2018).

Moreover, in line with the DSMM proposition of transactional processes between media use, response states, and media outcomes (Valkenburg & Peter, 2013), prior studies have provided evidence for an overtime process. One's cognition influenced the extent to which adolescents find media content that mirrors their cognition useful (Peter & Valkenburg, 2010). Additionally, when media from a given source was perceived as useful information, adolescents used it more frequently over time (Peter & Valkenburg, 2010; Vandenbosch et al., 2018). This latter finding also mirrors literature outlining that users are more motivated to consume media content when they believe the information it contains to be useful (Brown et al., 2012).

Perceptions about the utility of media content may be particularly relevant in the context of late adolescence and the crafting of professional beliefs. Developmental literature points at this phase as a key period for developing a career trajectory in which adolescents try to make career choices and investigate which careers would fit with their own (gender) identities (Vondracek & Porfeli, 2006). However, as not all adolescents have real-life working experience (Desilver, 2015), they may be dependent on other socialization actors, including the media, to provide them with career-related information (Myers et al., 2011; I. Vranken & Vandenbosch, 2022). Therefore, adolescents may be more prone to view media as a trustworthy source.

Taking all the above together, we would expect that the more frequently an adolescent sees woman boss series or posts, the more that adolescent will perceive such content as useful. In turn, this adolescent will adapt cognition to be in line with the content and thus exhibit lower professional sexism. This may be a reciprocal process in which professional sexism influences perceived utility, which in turn influences exposure to woman boss content over time (See Figures 1–2):

H3: The longitudinal reciprocal relationships between exposure to woman boss series (H3a)/woman boss posts on social media (H3b) and professional sexism are mediated by perceived utility at the within-person level. Positive reciprocal relationships between exposure to woman boss series/posts on social media and perceived utility on the one hand and negative reciprocal relationships between perceived utility of series/posts and professional sexism on the other hand are expected.

Hypergender Identity and Familiarity with Women in Atypical Professions

Another proposition of the DSMM (Valkenburg & Peter, 2013) is that differential susceptibility factors act as moderators because media users respond differently to the media content they consume (Valkenburg & Peter, 2013). As for the relations between exposure to woman boss content, perceived utility, and professional sexism, we expect that (1) hypergender identity and (2) being familiar with women in atypical jobs may be important moderators to consider.

A hypergender identity refers to the extent to which individuals have internalized gender-stereotypical masculine and feminine traits in the core of their identity (Bem, 1974; 1981b). According to gender schema theory (Bem, 1981a), individuals match their gender schemas with their own self-concepts or gender identities. Individuals are expected to align their self-concepts with internalized gender schemas and thus attribute gender-stereotypical traits to themselves, depending on their gender schemas. Bem (1981b) distinguishes between four types of individuals: more masculine, more feminine, androgynous (masculine and feminine), and undifferentiated (neither masculine nor feminine) (Bem, 1981b). Individuals with high hypergender identity, whether hypermasculine or hyperfeminine, vs. low gender identity, whether undifferentiated or androgynous, are more “cognitively available” to endorse gender-stereotypical and counter-stereotypical information, respectively. Consequently, individuals with low and high levels of hypergender identity will respond

more strongly to counter-stereotypical and stereotypical media, respectively. Although no recent research has examined the moderating role of hypergender identity in the (longitudinal) relations between media use, perceived utility, and gendered professional beliefs, one older study indicates that less hypermasculine and hyperfeminine individuals were more positively affected when watching counter-stereotypical series (Eisenstock, 1984). Therefore, we would expect that adolescents with low hypergender identities who more frequently consume woman boss content may perceive such content as more useful and thus show less professional sexism than hypermasculine or hyperfeminine adolescents.

This process may be transactional, as an adolescent with a low hypergender identity and a lower level of professional sexism may react more strongly with higher perceived utility; that in turn may increase exposure to woman boss series and posts over time. Longitudinal research partially aligns with this reasoning as it supports links between one's hypergender identity and exposure to content in line with one's gender identity (van Oosten et al., 2017; Vandenbosch, 2015), but not yet with the mediating role of perceived utility. To further examine our reasoning, we pose the next hypothesis:

> **H4:** An adolescent with low hypergender identity experiences stronger within-person reciprocal associations between exposure to woman boss series (H4a)/woman boss posts on social media (H4b), perceived utility, and professional sexism than an adolescent with high hypergender identity.

Individuals may also differ in their responses to counter-stereotypical media content depending on the extent to which their direct environment provides them with information and role models that promote women in atypical professions and positions. Research in other media effect domains has highlighted the importance of offline socialization actors in individuals' responses to media (Calzo & Ward, 2009). It is likely that substantial variation exists in the number of women adolescents know who work in atypical professions or

positions and that some adolescents even are entirely unfamiliar with women working in such professions and positions (Bieri Buschor et al., 2014).

According to gender schema theory (Bem, 1981a), individuals' direct environment will have a substantial impact on how they respond to gender-related information. Similar to the reasoning on hypergender identity, gender schema theory (Bem, 1981a) points to the cognitive availability of individuals to process counter-stereotypical information. Therefore, an adolescent who knows women in counter-stereotypical professions in their direct environment are more cognitively available to process woman boss content on television and in social media. Consequently, such an adolescent may react more strongly to that content with higher perceived utility and lower professional sexism.

Given the transactional nature of media effects proposed in the DSMM (Valkenburg & Peter, 2013), we expect that an adolescent who knows more women in atypical professions and who has low levels of professional sexism may react more strongly with high perceived utility and consequently with more frequent exposure to woman boss series and posts than an adolescent who knows fewer women in counter-stereotypical professions.

Although research about the moderating role played by counter-stereotypical role models in one's environment in media effects is lacking, prior research on gender-stereotypical media does reveal that adolescents whose parents communicated gender-stereotypical messages reacted more strongly to media promoting such stereotypical roles (Rousseau et al., 2019). Those authors also provided some evidence for offline socialization actors that strengthened media effects among adolescents. Given that offline role models in counter-stereotypical professions are a crucial information source in individuals' vocational anticipatory socialization (Jablin, 2001; Myers et al., 2011), we examined its potential strengthening effect on adolescents:

H5: Adolescents who know more women in counter-stereotypical professions in their offline environments experience stronger within-person reciprocal relationships between exposure to woman boss series (H5a)/woman boss posts on social media (H5b), perceived utility, and professional sexism than adolescents who know fewer women in counter-stereotypical professions.

Method

A longitudinal study was conducted in Belgium. This study is part of a larger project, but none of the key variables used in this study will be used in other studies. This study received ethical approval from the institutional review board of KU Leuven] before collecting the data. Participants were in their last year of high school during the first two waves of data collection; almost all had graduated during the third wave. Data were collected in January, May, and September 2021. This four-month time interval was chosen to capture the changes that participants experienced when considering career choices (Vondracek & Porfeli, 2006).

Data Collection Procedure: Longitudinal Study

A two-step procedure was followed to recruit participants in their senior year of high school year in Belgium. In Belgium, high school seniors receive active career preparation, including information sessions and conversations regarding study choices. Unlike in other countries like the United States, there are no application procedures, entrance exams, or steep tuition fees for higher education. As a result, adolescents can decide what to study in higher education during their final year of high school and enroll in college until the start of a new academic year.

First, based on a list of secondary schools in Belgium, a random sample of 499 schools was recruited. School principals received an information letter about the study and were asked to permit their pupils to participate. A total of 26 schools eventually participated in the study. Passive parental consent was requested along with active consent from

participants. Some data collection occurred when COVID-19 restrictions were still applicable. Therefore, different data collection procedures were used for the first and second waves of data collection. Most schools (n = 21) participated during school hours in the presence of a researcher. Additionally, other schools (n= 3) participated via Microsoft Teams when pupils followed distance learning at home, with the online presence of the researcher. For the first two waves of data collection, participants who took part during school hours were entered into a lottery to win one of 20 vouchers worth €20. Some other schools (n = 2) participated after school hours. As students participated during their leisure time, they each received a voucher for €5 as incentive. In the third wave of data collection, all participants took part after school hours because most had already graduated from high school. Because previous research reveals that certain groups (e.g., boys) are more likely to drop out in longitudinal studies (Schreurs & Vandenbosch, 2022a), we aimed to minimize drop-out among these groups. Therefore, each participant received a voucher of €10.

In Wave 1, 1,526 adolescents responded to the questionnaire. In Wave 2 and Wave 3 , 1,405 and 743 adolescents responded, respectively. Respondents were excluded from the analytical sample when they did not participate in at least two waves or did not provide active consent. For each wave, we checked whether participants passed an attention check. If they did not answer this question correctly, their responses from that wave were deleted. Ultimately, 1,286 adolescents were included in the analytical sample (n= 721, 56.1% girls, M_{ageWave1} = 18.33, $SD_{ageWave1}$ = 0.64). Most participants were of Western European ethnicity (n= 1,054, 82.9%). Almost half the participants followed the general education track (n= 602, 46.7%), followed by the technical (n= 503, 40.3%), professional (n= 140, 11.2%), and arts education tracks (n= 22, 1.8%).

Additional analyses revealed that participants who took part in at least two waves were different from those who took part in only one wave in terms of age, sex, educational

track, and ethnicity. More specifically, older adolescents, boys, participants in technical, professional, and arts education tracks, and non-Western-European participants were more likely to participate in only one wave. According to Little's missing completely at random test, data were not completely missing at random (χ^2 (588) = 1206.05, $p < .001$). To determine whether the missing cases were dependent on well-known factors (i.e., sex, age, type of education, and ethnicity) and could therefore be regarded as missing at random, logistic regression analyses were used. The results revealed that boys and non-Western European participants were more likely to have missing values on variables towards the end of Wave 1 and Wave 2, which involved the perceived utility of woman boss series and posts. In addition, boys, older adolescents, and adolescents in other types of education than general education were more likely to have missing values on all variables in Wave 3. Full results of these additional analyses are reported on OSF (https://osf.io/p8ube)

Pilot Survey Study

Before conducting the longitudinal study, a pilot survey study was conducted to test novel scales and items. These scales were developed by constructing new items and/or adapting previously validated scales and tested before the commencement of the longitudinal study. All information about sample size, data collection procedures, factor analyses, reliability, and items omitted after the pilot study can be found in the supplementary materials on OSF (https://osf.io/ryv8z/). The full questionnaire and all items used in the longitudinal study can also be found in the appendix on OSF (https://osf.io/ryv8z/).

Measures

All measures of this study were administrated and completed at all three time points. In this study, however, we only used data from Wave 1 for our control variables (i.e., perceived gender norms parents, perceived gender norms peers, sex) and moderators (i.e., hypergender identity, knowing women in atypical professions).

Exposure to Woman Boss Series

Six items that referred to male-dominated professions (U.S. Bureau of Labor Statistics, 2022) were used to measure exposure to a fiction series in which women have atypical professions. Participants indicated on five items how frequently they had seen a fiction series whether on streaming platforms or television during the past four months in which a female character (1) is a police officer, (2) is a scientist/mathematician, (3) is a computer programmer/ICT specialist, (4) has a senior function (e.g., manager, CEO), or (5) is successful in her career. The response options ranged from (1) *never* to (8) *multiple times in a day*. Whereas items 1–3 refer to specific male-dominated professions and thus horizontal segregation, items 4–5 refer to specific male-dominated positions and roles and thus vertical segregation. Based on Kline (2013) and in line with prior research (Rousseau et al., 2019), this variable was considered manifest because participants may have experience with one type of series, but not necessarily another. A new variable was created by averaging the item scores; higher scores indicated more frequent exposure to woman boss series.

Perceived Utility of Woman Boss Series

Based on the perceived utility scale of Peter and Valkenburg (2010), participants rated how much they agreed with three items about the woman boss series they had seen in the past four months, such as "After viewing such series, I learned things that I would have never learned otherwise." Response options ranged from (1) *totally disagree* to (7) *totally agree*. Principal axis factoring (PAF) supported the one-dimensional factor structure of the items (range eigenvalue Wave 1–Wave 3 = 2.15–2.32; range explained variance Wave 1–Wave 3 = 71.64%–77.25%). These measures were reliable (ωWave 1 = .81, ωWave 2 = .86, ωWave 3 = .83). A new variable was created by averaging the item scores; higher scores indicated higher levels of perceived utility of woman boss series.

Exposure to Woman Boss Posts on Social Media

Participants were asked to respond to five items on how frequently they had seen posts on social media (e.g., pictures, status updates) in which women had certain professions, such as police officers, scientists, or mathematicians. Response options ranged from (1) *never* to (8) *multiple times in a day*. Note that the five items were the same items as the exposure to woman boss series items above. Based on Kline (2013), this variable was considered manifest. A new variable was created by averaging the item scores; higher scores indicated more frequent exposure to woman boss posts on social media.

Perceived Utility of Woman Boss Posts on Social Media

Based on the perceived utility scale of Peter and Valkenburg (2010), participants rated how much they agreed with three items about the woman boss posts on social media they had seen in the past four months, such as "After viewing such posts on social media, I received useful information about how these women work in such professions (e.g., police officer, scientist, mathematician, CEO, manager, computer specialist)." Response options ranged from (1) *totally disagree* to (7) *totally agree*. PAF supported the one-dimensional factor structure (range eigenvalue Wave 1–Wave 3 = 2.36–2.43; range explained variance Wave 1–Wave 3 = 78.76%–81.08%). These measures were reliable (ωWave 1 = .87, ωWave 2 = .88, ωWave 3 = .89). A new variable was created by averaging the item scores; higher scores indicated higher levels of perceived utility of woman boss posts.

Professional Sexism

Based on prior scales (Galambos et al., 1985; Morgan, 1982) and new items, a novel scale was created to assess participants' levels of professional sexism. Participants indicated the extent to which they agreed with 12 items, such as "Women are better suited for caring professions (e.g., nursing) compared to men" and "Men are better suited for STEM professions compared to women" on a scale from (1) *totally disagree* to (7) *totally agree.* PAF supported the one-dimensional factor structure (range eigenvalue Wave 1–Wave 3 = 6.55–7.11; range

explained variance Wave 1–Wave 3 = 54.62%–59.28%; ωWave 1 = .92, ωWave 2 = .94, ωWave 3 = .94). A new variable was created by averaging the item scores; higher scores indicated higher levels of professional sexism and thus higher gender-stereotypical beliefs regarding the professional roles and tasks that are reserved for men vs. women.

Control Variables and Moderators

Hypergender Identity. The Bem Sex Role Inventory for adolescents was used (Bem, 1981b; Fontayne et al., 2000). Participants indicated the extent to which they agreed with 17 items, such as "I like to help others" on a scale from (1) *totally disagree* to (7) *totally agree*. PAF revealed the bi-dimensionality of the scale, with nine items reflecting a more feminine orientation (eigenvalue Wave 1 = 5.30; explained variance Wave 1 = 31.18%; ωWave 1 = .88) and eight items reflecting a more masculine orientation (eigenvalue Wave 1 = 3.80; explained variance Wave 1 = 22.33%; ωWave 1 = .87). Two new variables were created. A first variable was created by averaging the item scores on the femininity subscale; higher scores indicated higher endorsement of feminine identity. A second variable was created by averaging the item scores on the masculinity scale; higher scores indicated higher endorsement of masculine identity.

Women in Atypical Professions. Participants indicated on seven items how many women they personally knew in atypical professions or positions using the following scale: (1) *nobody*, (2) *one person*, (3) *multiple people.* An example item is "Women who are scientists/mathematicians or study science/mathematics in university." The same types of professions were asked as with exposure to woman boss series and posts. Based on Kline (2013), this variable was considered manifest. A new variable was created by averaging the item scores; higher scores indicated that adolescents knew more women in atypical professions and positions in their environment.

Socio-Demographics. Participant sex was collected (1 = male, 2 = female).

Perceived Parents' Gender Norms. Based on the Traditional Gender Roles scale (Epstein & Ward, 2011), participants indicated the extent to which their parents would agree with five items, such as "My parents think that a real man gets what he wants" on a scale from (1) *totally disagree* to (7) *totally agree.* A PAF supported the one-dimensional factor structure of the items (eigenvalue Wave 1 = 3.35; explained variance Wave 1 = 66.96%, ωWave 1 = .88). A new variable was created by averaging the item scores; higher scores indicated that adolescents more strongly believed that their parents believed in stereotypical gender norms.

Perceived Peers' Gender Norms. Based on the Traditional Gender Roles scale (Epstein & Ward, 2011), participants indicated the extent to which their peers would agree with five items, such as "My friends think that a husband's career is more important than the wife's" on a scale from (1) *totally disagree* to (7) *totally agree.* A PAF supported a one-dimensional factor structure (eigenvalue Wave 1 = 3.48; explained variance Wave 1 = 69.61%, ωWave 1 = .86). A new variable was created by averaging the item scores; higher scores indicated that adolescents more strongly believed that their friends endorsed stereotypical gender norms.

Analytical Strategy

After all data were collected, all analyses and hypotheses were pre-registered on OSF (https://osf.io/dk5rf). Descriptive statistics were calculated using SPSS. This study uses RI-CLPMs (Hamaker et al., 2015) in Mplus. Two separate models were estimated (model 1 = model TV series, model 2 = model social media), but both models followed a similar strategy. The variables were first entered as manifest variables at each of the three time points and regressed on a relevant latent component, with factor loadings constrained to one. These latent components represent the within-person variance. Next, within-person relations were assessed by measuring autoregressive, concurrent, and cross-lagged paths across the within-person factors. Finally, by constraining the factor loadings of the manifest variables at each

time point to one, random intercept factors were computed. The between-subject relationships are represented by the correlations between these random intercept factors. All analyses were controlled for sex and perceived gender norms of peers and parents. For each model, we measured whether the model's means could be constrained over time. We continued with the constrained model if the model with constrained means was not significantly worse than the models without the constraints. Figure 3 provides a representation of the hypothesized RI-CLPM for woman boss series.

To test moderation, we conducted multiple group models (Mulder & Hamaker, 2021). Categorical variables were created for our moderators using a median split. For hypergender identity, four groups were created, in alignment with prior research (Peng, 2006). Participants scoring high on femininity and masculinity were rated as "androgynous" (n= 297, 23.8%). Those scoring low on femininity but high on masculinity were rated as "masculine" (n= 282, 22.6%), and those scoring high on femininity but low on masculinity were designated "feminine" (n= 310, 24.9%). Finally, those scoring low on both were classified as "undifferentiated" (n= 357, 28.7%). Afterward, a model in which the lagged regression coefficients were constrained to be identical across these groups and a model in which there were no group constraints were compared with each other using χ^2 difference tests (Mulder and Hamaker, 2021). Acceptable fit was always evaluated with $\chi 2/df$ (≤ 5), RMSEA < .80, CFI > .90, TLI > .90, and SRMR < .80 (West et al., 2012). Note that all data and syntax can be found on OSF (https://osf.io/qbfnm/).

At the request of a reviewer, additional exploratory analyses were conducted with adolescents' sex as a moderator As we did not preregister these analyses and sex was not a significant moderator, we have posted these results on OSF as exploratory analyses (https://osf.io/wqygm/).

Results

Descriptive Statistics

The means, standard deviations, and zero-order correlations for each variable over the three waves can be found in Table 1. Exposure to woman boss series and woman boss posts had ICC values of .41 and .50, respectively. Therefore, between-person differences account for 41% and 50% of the variance in these variables. The ICC values for perceived utility of series and posts were .46 and .65, respectively. Finally, the professional sexism ICC value was .77. These ICC results validate the application of the within-person analyses using RI-CLPM.

Results of the Main Models

Both models showed a good model fit (TV series model: $\chi^2(3) = 2.30$, $p = .512$, CFI = 1.00, RMSEA = .00, 90% CI = [.00/.04], SRMR =.01, $\chi^2/df = .78$; social media model: $\chi^2(3) = 12.58$, $p = .006$, CFI = 1.00, RMSEA = .05, 90% CI = [.02/.08], SRMR =.01, $\chi^2/df = 4.19$). Both models showed significantly worse model fit when constraining the means over time. As such, we worked with unconstrained means.

Between-Person Level

The full results can be found in the Supplementary Table S1 on OSF (https://osf.io/nhbd8). At the between-person level for the TV series model, the random intercept of exposure to woman boss series was positively correlated with the random intercept of the perceived utility of woman boss series, $\beta = 0.49$, $b = 0.41$, $SE = .11$, $p < .001$, and negatively correlated with the random intercept of professional sexism, $\beta = -0.28$, $b = -0.18$, $SE = .11$, $p = .013$. Similarly, the random intercept of exposure to woman boss posts was positively correlated with perceived utility of woman boss posts, $\beta = 0.67$, $b = 0.52$, $SE = .10$, $p < .001$. No specific hypotheses were formulated for the between-person associations between exposure to woman boss series/posts, perceived utility, and professional sexism because the current study specifically focused on these associations at a within-person level.

Yet, as RI-CLPM distinguish between within- and between-person associations, we also reported these between-person associations.

Within-Person Level (H1–H3)

All parameter estimates of the cross-lagged, concurrent, and autoregressive paths at the within-person level can be found in the Supplementary Table S1 on OSF.

Television Series Model. For the television series model (See Figure 4), a positive relation was found between professional sexism at Wave 2 and perceived utility of woman boss series at Wave 3, $\beta = 0.20$, $b = 0.34$, $SE = .09$, $p = .020$, contradicting the direction of the relations we expected in H3a. None of the indirect relationships was significant.

Additionally, auto-regressive relations were found for the TV series model. More precisely, the results indicated that the perceived utility of woman boss series at Wave 1 positively predicted the perceived utility of woman boss series at Wave 2, $\beta = 0.20$, $b = 0.22$, $SE = .08$, $p = .011$. Similarly, professional sexism at Wave 2 positively predicted professional sexism at Wave 3, $\beta = 0.34$, $b = 0.37$, $SE = .08$, $p < .001$.

Social Media Model. For the social media model (see Figure 5), none of the crossed-lagged relations were significant, which implies that reciprocal relations were not present. None of the indirect relationships were significant. However, the results indicated that autoregressive relations existed in the social media model. Perceived utility of woman boss posts on social media at Wave 1 positively predicted perceived utility of woman boss posts on social media at Wave 2, $\beta = 0.18$, $b = 0.18$, $SE = .09$, $p = .043$. Likewise, perceived utility of woman boss posts on social media at Wave 2 positively predicted perceived utility of woman boss posts on social media at Wave 3, $\beta = 0.21$, $b = 0.22$, $SE = .08$, $p = .010$. Finally, professional sexism at Wave 2 positively predicted professional sexism at Wave 3, $\beta = 0.31$, $b = 0.34$, $SE = .10$, $p = .002$.

Together, H1 and H2 were rejected, as exposure to woman boss series and posts did not reciprocally relate to professional sexism over time. For the role of perceived utility, we found one association contradicting our expectations regarding H3.

Moderation by Hypergender Identity (H4)

For the TV series model, the χ^2 difference test indicated that the unconstrained model, $\chi^2(12) = 11.91$, $p = .453$, CFI = 1.00, RMSEA = .00, 90% CI [0.00, 0.06], SRMR = .01, $\chi^2/df = 0.99$, did not differ from the constrained model, $\chi^2(48) = 46.33$, $p = .541$, CFI = 1.00, RMSEA = .00, 90% CI = [0.00, 0.04], SRMR = .02, $\chi^2/df = 0.97$, meaning that hypergender identity did not moderate the within-person relation between exposure to woman boss series, perceived utility of woman boss series, and professional sexism.

Similarly, the χ^2 difference test for the social media model indicated that the unconstrained model, $\chi^2(12) = 25.93$, $p = .011$, CFI = 1.00, RMSEA = .06, 90% CI = [0.03, 0.09], SRMR =.02, $\chi^2/df = 2.16$, did not differ significantly from the constrained model, $\chi^2(48) = 62.71$, $p = .075$, CFI = 1.00, RMSEA = .03, 90% CI = [0.00, 0.05], SRMR = .03, $\chi^2/df = 1.31$. Hence, H4 is rejected.

Moderation by Women in Atypical Professions (H5)

For the television series model, the χ^2 difference test indicated that the unconstrained model, $\chi^2(12) = 13.239$, $p = .352$, CFI = 1.00, RMSEA = .01, 90% CI = [0.00, 0.04], SRMR =.01, $\chi^2/df = 1.10$, did not differ from the constrained model, $\chi^2(24) = 26.694$, $p = .319$, CFI = 1.00, RMSEA = .01, 90% CI = [0.00, 0.04], SRMR =.02, $\chi^2/df = 1.11$, meaning that knowing women in atypical professions did not moderate the within-person relation between exposure to woman boss series, perceived utility, and professional sexism, thus rejecting H5. However, the χ^2 difference test for the social media model showed a difference between the unconstrained model, $\chi^2(6) = 28.291$, $p < .001$, CFI = .99, RMSEA = .08, 90% CI = [0.05, 0.11], SRMR = .02, $\chi^2/df = 4.72$, and the constrained model, $\chi^2(18) = 54.713$, $p < .001$, CFI =

.99, RMSEA = .06, 90% CI = [0.04, 0.08], SRMR = .02, $\chi^2/df = 3.04$. The within-person relationship between perceived utility of woman boss posts at Wave 2 and professional sexism at Wave 3 was negative for participants who scored low on knowing women in atypical professions, $\beta = -0.21$, $b = -0.13$, $SE = .09$, $p = .018$, but positive for participants who scored high on this variable, $\beta = 0.28$, $b = 0.18$, $SE = .13$, $p = .028$. The direction of this moderation contradicts H5b.

Discussion

A limited amount of research has revealed that exposure to counter-stereotypical portrayals of women in atypical professions in television series relates to lower professional sexism (Miller & Reeves, 1976; O'Bryant & Corder-Bolz, 1978). In response to previous studies (Miller & Reeves, 1976, this longitudinal study aimed to gain new insights by not only considering the potential role of woman boss television series but also woman boss social media content in late adolescents' professional sexism. To gain in-depth insights into these associations, we examined the mediating role of the perceived utility of woman boss content and moderating roles of hypergender identity and knowing women in atypical professions offline.

The findings provided support for between-person associations between exposure to woman boss content, perceived utility, and professional sexism but not for within-person associations, across all time points. Although we did not find support for the moderating role of hypergender identity, knowing women in atypical professions moderated some of our within-person associations; however, even this finding was not consistent across all time points. Below, we discuss our findings in more detail.

Interpretation of the Results

The Importance of Distinguishing Between Within- vs. Between-Person Associations

First, although we were interested in the within-person level, between-person associations emerged as particularly prominent. Adolescents who more frequently watched a woman boss series scored lower on professional sexism. Our findings align with gender schema theory (Bem, 1981a), with adolescents who viewed this content more often reporting less stereotypical beliefs about professions than adolescents who were less frequently exposed to such content. Interestingly, adolescents who were more frequently exposed to woman boss series or posts on social media scored higher on perceived utility. While research on counter-stereotypical gender messages in individuals' vocational anticipatory socialization merely focused on offline socialization actors and television series (Jahn & Myers, 2014), our study highlights that social media may also have the potential to serve as a useful information source regarding women in gender counter-stereotypical professions. This reasoning aligns with previous studies that suggest social media may be considered a new vocational anticipatory socialization source, alongside traditional vocational anticipatory socialization sources like television series and family members (I. Vranken & Vandenbosch, 2022). Social media is unique in the mediated landscape because of its characteristics, including the content creation by users themselves, interactivity with content, and possibility of highly idiosyncratic information-seeking behavior (Perloff, 2014; I. Vranken & Vandenbosch, 2022).

The Role of Age as a Potential Explanation for Unstable Within-Person Associations

Second, although we found between-person associations in our study, no stable within-person associations emerged. More precisely, at the within-person level, no transactional relations occurred for exposure to woman boss content and professional sexism (H1-H2). As suggested by previous research (Bond, 2016), it is possible that woman boss portrayals may not be strong enough to override already existing (stereotypical) gender schemas.

Therefore, future research could examine whether such within-person associations occur among younger age groups, such as children aged three to twelve. The literature indicates that children between three and five are able to associate men and women with specific professions. Such gender-stereotypical beliefs regarding occupations often increase during elementary school, which roughly covers the period between five and twelve years old. However, other research reveals that during their elementary school years, children can also become more flexible in linking genders with certain occupations (Canessa-Pollard et al., 2022; Ruble et al., 2006).

Future research could focus, for instance, on children in elementary school who view woman boss series targeted at their age groups. To illustrate, research has already revealed that television series exist for children in which female characters conduct STEM-related activities or are portrayed in stereotypically male STEM professions (Aladé et al., 2021). For children, such woman boss series may affect their professional sexism at a within-person level to a greater extent compared to other age groups. If such studies provide support for the links between exposure to woman boss media and children's professional sexism, there may be important implications for the role of woman boss series in individuals' vocational anticipatory socialization. This would entail that some vocational anticipatory socialization sources, such as television series, may be more important for certain age groups than others.

Interestingly, although gender socialization already occurs during childhood (Ruble et al., 2006), it appeared that adolescents' professional sexism was still developing, given that the autoregressive correlations of professional sexism between Wave 2 and Wave 3 were significant. Yet, this autoregressive correlation was not found between Wave 1 and Wave 2. It thus remains questionable whether this positive association between Wave 2 and Wave 3 emerged because adolescents had graduated from high school in Wave 3 or a meaningful

event in adolescents' career choice trajectory; that is, high school graduation and choosing a job or field of study in higher education. Future research is needed to test this reasoning.

The Content of Woman Boss Series and Posts as a Potential Explanation for Unstable Within-Person Associations

Additionally, the type of woman boss content that adolescents viewed could be considered. While certain woman boss television series and posts on social media may portray women in atypical professions, it remains questionable whether all woman boss content is truly counter-stereotypical. Some content may not focus enough on the professional lives of these women or may not portray women favorably enough to evoke less overall sexism. For instance, Warren et al. (2016) showed that some women in atypical professions are portrayed negatively in other domains, such as motherhood, in television series. Future content analytical research could focus on precisely how women in atypical professions are portrayed in media. Qualitative studies may further examine adolescents' experiences regarding woman boss content and how adolescents perceive the benefits (e.g., higher status, higher earning potential, impact) and costs (e.g., work-life balance challenges) of women who are portrayed in atypical professions.

Professional Sexism as a Potential Explanation for Unstable Within-Person Associations

Another explanation for our non-significant findings may be our measure of professional sexism, which used broad statements regarding, for instance, men performing better in STEM professions and women doing better in caring professions. Additionally, it included measures regarding women staying at home and not going to work to take care of children when they are ill. It is possible that this scale evoked socially desirable responses, given that previous research has revealed differences in how individuals respond on different sexism measures in terms of benevolent vs. hostile sexism (Agut et al., 2022). This may also explain why adolescents in our sample generally had low scores on professional sexism.

The Role of Offline Socialization Actors as a Potential Explanation for Puzzling Within-Person Associations

However, one puzzling within-person relation emerged. In contrast to the direction of the relationship we expected (H3a), higher levels of professional sexism in Wave 2 were related to an increase in perceived utility of woman boss series in Wave 3. This result should be interpreted with caution because our findings were not consistent across all waves. Still, it contradicts research showing that one's cognition positively predicts the perceived utility of media content that aligns with that cognition over time (Vandenbosch et al., 2018). Potentially, adolescents with higher levels of professional sexism endorsed stereotypical beliefs because they do not have role models in their offline environment who have counter-stereotypical jobs. Therefore, viewing media that portray women in atypical professions may challenge their view of the professional world, and they may find that information useful. Regarding vocational anticipatory socialization, this would entail that individuals' professional sexism should be considered, as people may differ in the extent to which they find woman boss series a useful vocational anticipatory socialization source.

Methodological Explanations for Unstable Within-Person Associations

Overall, these findings suggest that between-person associations in particular may exist and that such associations do not emerge on a within-person level. This finding aligns with other media studies in other domains like body image and stress that also only found support for between-person associations (Schreurs & Vandenbosch, 2022a; van der Schuur et al., 2019). Therefore, we highlight the importance of distinguishing between within- and between-person associations in future research. One reason for not finding consistent within-person associations but only between-person associations may be the design of our study. Our time lag may have also been too long to detect within-person relations. This aligns with the view of RI-CLPMs that they are especially useful for detecting effects with short time lags

that are measured in days rather than months (Lüdtke & Robitzch, 2021; Orth et al., 2021). Additionally, we may not have detected any within-person associations because we only had three waves of data collection. RI-CLPM require more assessments to detect within-person associations (Orth et al., 2021).

The Moderating Role of Knowing Women in Atypical Occupations in the Real-World

There were also unexpected findings concerning the moderating role of knowing women in atypical jobs offline (H5). As for woman boss posts on social media (H5b), higher perceived utility of such posts in Wave 2 was related to a decrease in professional sexism in Wave 3 when an adolescent knew fewer women in atypical professions. It should however be noted that this was not a consistent finding, as it only emerged between Wave 2 and Wave 3. Therefore, caution should be exercised when interpreting this result. This finding appears to contradict our expectations derived from gender schema theory (Bem, 1981a), in which we expected that individuals who knew more women in atypical jobs offline would be more cognitively available to process woman boss content. Yet, it seems possible that people who do not have those counter-stereotypical role models are cognitively available to process such content. Conversely, adolescents who knew women in atypical professions offline and who found woman boss posts useful at Wave 2 showed an increase (rather than a decrease) in professional sexism at Wave 3. Potentially, as previously explained, the messages that are distributed in woman boss posts should be considered as some messages can offer negative insights into the lives of women in atypical professions. Whereas woman boss posts may be inspirational (Alkhammash, 2019), other studies have highlighted that women who portray themselves in atypical professions relate negative experiences such as being interrupted by men (Hosie, 2020) or sexist comments (Amarasekara & Grant, 2019). Potentially, such negative content may intertwine with more inspirational offline role models, leading adolescents to adjust their views in line with the woman boss content they have viewed. This

reasoning is speculative, and more research is needed to replicate such findings in longitudinal studies.

However, the finding about the moderating role of knowing women in atypical professions may have important implications for research regarding vocational anticipatory socialization. While that kind of research (Levine & Aley, 2022; Myers et al., 2011) typically considers media a separate vocational anticipatory socialization source from offline socialization actors like family members, the present study indicates that different vocational anticipatory socialization sources may also interact with one another. Therefore, there may be the need to investigate the interaction between media and offline socialization actors in order to comprehend how this interplay affects individuals' learning about the professional world.

The Moderating Role of Hypergender Identity

Lastly, we could not find support for the moderating role of hypergender identity (H4). Following the DSMM (Valkenburg & Peter, 2013), which posits that three types of differential susceptibility factors may exist—dispositional, developmental, social—it seems that some moderators like knowing women in atypical professions offline may be more important to consider than others to understand the relations between professional counter-stereotypical media content and adolescents' responses to such content.

Limitations and Future Research Directions

Our study had several limitations. First, the attrition rate from Wave 1 to Wave 3 was 48.69%, with an especially high attrition rate at Wave 3. This could be due to our data collection procedures, since all participants were required to complete the survey at home during their leisure time. Yet, we made various efforts to motivate adolescents to participate in Wave 3 such as explaining the importance of participating in all waves and sending reminders. Future research may look for more effective strategies on how drop-out can be

minimized in longitudinal studies, especially when dealing with young people who experience a major life event during the overall study period.

The data were collected during COVID-19, a period when adolescents more frequently consumed media (GWI, 2020). At the same time, adolescents might have seen woman boss posts on social media less frequently because of work-related restrictions, such as telework, were still in force. The descriptive statistics revealed that adolescents less frequently viewed woman boss posts during the first wave than in the subsequent waves, when COVID restrictions were less severe. COVID-19 may also have impacted adolescents' career choice process. As information sessions about career choices were organized online in high schools, adolescents could have turned to media to receive career information, which could have increased its perceived utility.

Furthermore, this study focused on late adolescents in their senior year of high school in Belgium. Future research should explore whether our findings can be replicated in other countries and among other age groups. Such research is recommended to consider cross-country differences. For instance, while the students in our sample do not have to apply for college during their senior high school year, those in many other countries, including the United States, do have to go through application processes that can be quite time-consuming. Such country differences may affect the links under scrutiny in the current study. Additionally, future research is recommended to consider younger age groups, such as children in elementary school, when they are more flexible in the formation of gender-stereotypical beliefs (Ruble et al., 2006).

While this study provided some initial insights into within-person associations between woman boss (social) media and professional sexism, future research could focus separately on the unique contexts of television and social media and use more detailed media measures. With regard to television series, future research may consider viewing patterns like

binge-watching or multitasking. For instance, adolescents who more often binge-watch woman boss series may process the storylines to a lesser extent and may be less deeply involved with storylines. Research in other domains such as attitudes to abortion has shown that individuals who binge-watch a television series are less likely to be involved with its characters (Walter et al., 2018).

Concerning social media, future research could focus on the links between different levels of interactions with woman boss posts, such as liking, commenting, and reposting, and individuals' professional sexism. Depending on the age group, however, not all interactions with woman boss content may be equally important. To illustrate, posting behaviors may be especially relevant to consider among people who already work and can post about their jobs on social media. Compared to merely passive exposure to social media content, liking, commenting, and posting require users to actively engage with posts (Schreurs & Vandenbosch, 2022b; I. Vranken et al., 2022). Therefore, stronger relations may arise between more active social media behaviors and their outcomes than between passive social media activities and their outcomes (Geusens & Beullens, 2016; I. Vranken et al., 2022). Additionally, our study did not distinguish between different message features. Therefore, future studies could distinguish between exposure to persistent private and public and ephemeral private and public woman boss posts, in line with the temporality and accessibility of message types (TAMT) Model (S. Vranken et al., 2022). The TAMT model would expect exposure to content in ephemeral messages to relate more strongly to specific outcomes like behaviors than exposure to content in persistent messages (S. Vranken et al., 2022).

Additionally, future research could employ more nuanced measures of adolescents' exposure to woman boss series. Our measure focused only on viewing women in atypical professions in television series but did not consider the details of how such characters were portrayed. To illustrate, portrayals of women in leadership positions may differ in terms of

prestige. If a female character is portrayed as the sole female leader of a team of workers but has her ability to carry out a supervisory role questioned or is not respected by her team (e.g., Garland et al., 2018 , she may be less likely to serve as an inspirational role model for adolescents. However, a female character who is portrayed as the only woman in the board of directors could become an inspirational role model when she is shown as respected by her board members and allowed to make important decisions. Therefore, future studies could develop measures that consider the extent to which female characters in atypical professions and positions give empowering and inspirational messages to adolescents.

Additionally, future research could focus on subtler and more benevolent professional sexism measures that capture beliefs about how men and women balance work and family life and handle conflicts differently.

Although this study was one of the first to also consider the role of offline socialization actors as a moderator, future research may focus on developing more specific measurements. For instance, we did not account for how close individuals were with women in atypical jobs or for the extent to which messages from women in atypical jobs in one's environment conflict with woman boss media content. Future research could capture how the effects of exposure to woman boss media on adolescents differ depending on their offline experiences with women in atypical professions.

Additionally, future research may consider adolescents' own rich experiences with woman boss content. Such studies may, for instance, focus on adolescents' levels of professional sexism and examine how adolescents with low vs. high levels of professional sexism may differently experience women boss TV series and social media posts.

This study focused on the moderating role of hypergender identity by using the Bem Sex Role Inventory (Bem, 1981b). Although this measurement is still frequently used in research (Cooke et al., 2022; Coyne et al., 2022), it has also received criticism regarding, for

instance, its generalizability to other cultures and the inclusion of outdated gender stereotypes (Connell, 2005; Hoffman & Borders, 2001). Therefore, future research can reflect on the use of this measurement instrument.

We also considered some variables as manifest based on Kline (2013) and prior research (Rousseau et al., 2019). Because other scholars consider such variables such as media exposure to be latent (Vandenbosch et al., 2018), it is unclear how to best treat such variables.

Practice Implications

Given that our within-person association results were inconsistent, practical implications should be drawn from our between-person findings. These between-person findings indicated negative links between exposure to woman boss series and professional sexism, suggesting that people who have higher levels of professional sexism also consume woman boss series less frequently. Therefore, when discussing professional role models with adolescents, their teachers, academic career counselors, and parents should be aware that not all adolescents may consume woman boss content to the same extent. However, these influential figures can make these adolescents aware of the media environment in which woman boss series exist.

In a similar vein, media producers should be aware that specific types of audiences, such as individuals with lower professional sexism, may consume woman boss series. They can still portray women in atypical professions more frequently so that such characters are more likely to become part of adolescents' everyday media consumption patterns. While studies have shown an increase in the portrayal of women in atypical professions over time (DeTardo-Bora, 2009; Signorielli & Bacue, 1999), other research indicates that women continue to be underrepresented in atypical professions such as scientists (Long et al., 2010). We recommend that media producers also consider how women in atypical professions are

portrayed, as they are sometimes still portrayed unfavorably and underachieving in various important life domains like work and family life (Warren et al., 2016).

A similar reasoning exists for perceived utility because adolescents who more frequently consumed woman boss series or social media posts reported finding such content a more useful information source. Therefore, teachers, academic career counselors, and parents may cite woman boss television series and social media content when discussing professional role models with adolescents. Additionally, media producers could focus on producing woman boss content that can provide useful information for all adolescents, as those who find such content useful may consume such content more often.

Conclusion

The present study has explored the longitudinal links between exposure to woman boss television series and posts on social media, perceived utility of woman boss content, and professional sexism among late adolescents. We found links between exposure to woman boss series and professional sexism on the one hand and exposure to woman boss content and perceived utility of such content on the other, both on a between-person level. Interestingly, these links were not consistently found on a within-person level, which indicates that exposure to woman boss content, perceived utility of woman boss content, and professional sexism do not influence each other over time within adolescents. Additionally, the study revealed that knowing women in atypical professions offline may play a moderating role in the links between exposure to counter-stereotypical media portrayals and their outcomes. Future research is needed to focus on the interplay between observing women in atypical professions in media and knowing such women offline, as that may shape young people’s gender socialization about the professional world.

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Table 1

Descriptive Statistics and Zero-Order Correlations

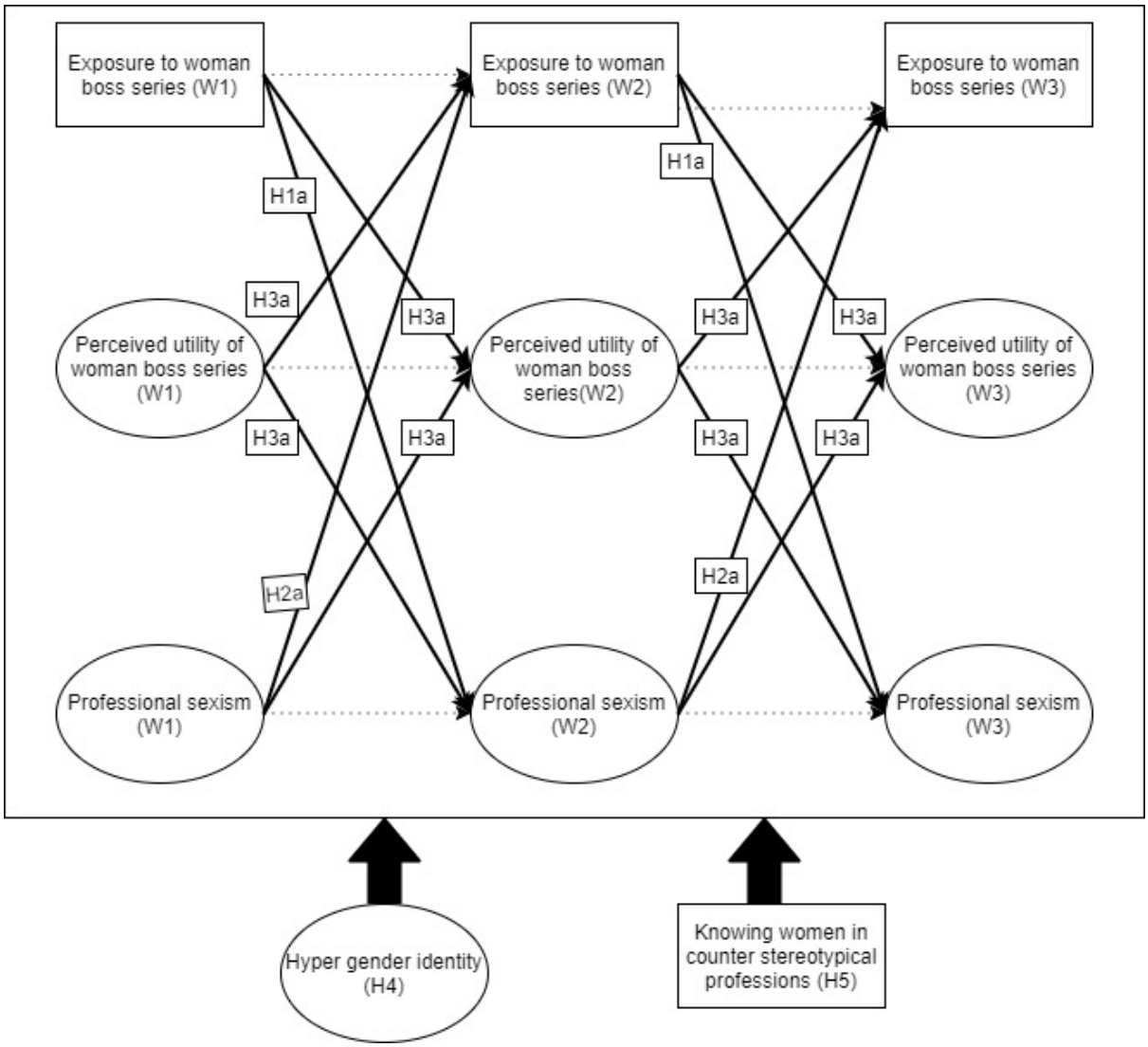
	M(SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Exp WB Series (W1)	3.80 (1.63)	-	.47***	.39***	.32***	.26***	.15***	.32***	.25***	.23***	.16***	.15***	.14**	-.15***	-.13***	-.08	.12***	-.06*	.13***	-.03	.00
2. Exp WB Series (W2)	3.69 (1.64)		-	.40***	.21***	.37***	.21***	.17***	.32***	.20***	.09**	.17***	.06	-.15***	-.14***	-.13**	.13***	-.04	.10***	-.04	-.01
3. Exp WB Series (W3)	3.90 (1.64)			-	.30***	.27***	.38***	.15***	.16***	.28***	.13**	.13**	.17***	-.15***	-.16***	-.11*	.12**	-.13**	.17***	-.01	-.03
4. Exp WB Posts (W1)	3.08 (1.39)				-	.52***	.46***	.21***	.22***	.24***	.42***	.28***	.29***	-.10***	-.08**	-.05	.29***	-.12***	.13***	.02	.04
5. Exp WB Posts (W2)	3.12 (1.47)					-	.49***	.20***	.25***	.21***	.31***	.44***	.29***	-.12***	-.07*	-.08	.23***	-.12***	.10***	-.00	.02
6. Exp WB Posts (W3)	3.23 (1.54)						-	.14**	.19***	.30***	.25***	.32***	.53***	-.06	-.02	.02	.22***	-.11**	.10*	.01	.01
7. Perc UT WB Series (W1)	3.96 (1.42)							-	.49***	.42***	.40***	.33***	.34***	.03	-.02	-.00	.07*	-.06	.14***	.08**	.11***
8. Perc UT WB Series (W2)	3.77 (1.50)								-	.47***	.38***	.52***	.32***	-.02	-.04	-.07	.11**	-.08**	.17***	.03	.07*
9. Perc UT WB Series (W3)	3.76 (1.43)									-	.33***	.40***	.55***	-.00	-.01	-.02	.06	-.02	.14***	.04	.09*
10. Perc UT WB Posts (W1)	3.15 (1.42)										-	.46***	.36***	.02	.03	-.03	.10***	-.05	.06*	.11***	.12***
11. Perc UT WB Posts (W2)	3.11 (1.42)											-	.48***	.04	.05	.02	.08**	-.01	.08**	.10***	.13***
12. Perc UT WB Posts (W3)	3.12 (1.45)												-	.04	.03	.04	.12*	-.04	.07	.03	.07

13. Prof Sex (W1)	2.50 (1.18)	-	.79***	.71***	-.15***	.04	-.42***	.61***	.54***	
14. Prof Sex (W2)	2.51 (1.23)		-	.76***	-.13***	.05	-.44***	.58***	.47***	
15. Prof Sex (W3)	2.27 (1.17)			-	-.12*	.03	-.38***	.48***	.41***	
16. Atypical Professions (W1)	1.44 (.50)				-	-.14***	.08**	-.04	-.05	
17. Hypergender Identity (W1)	1.58 (1.14)					-	-.07*	.03	.05	
18. Sex (W1)	1.56 (.50)						-	-.30***	-.22***	
19. Perceived Gender Norms Peers (W1)	2.34 (1.31)							-	.62***	
20.Perceived Gender Norms Parents (W1)	2.04 (1.18)								-	

Note. * p < .05; ** p< .01; *** p < .001. W1 = Wave 1, W2= Wave 2, W3= Wave 3. Exp WB Series = Exposure to woman boss series, Exp WB Posts = Exposure to woman boss posts, Perc UT WB Series = Perceived utility woman boss series, Perc UT WB Posts = Perceived utility woman boss posts, Prof Sex= Professional Sexism

Figure 1

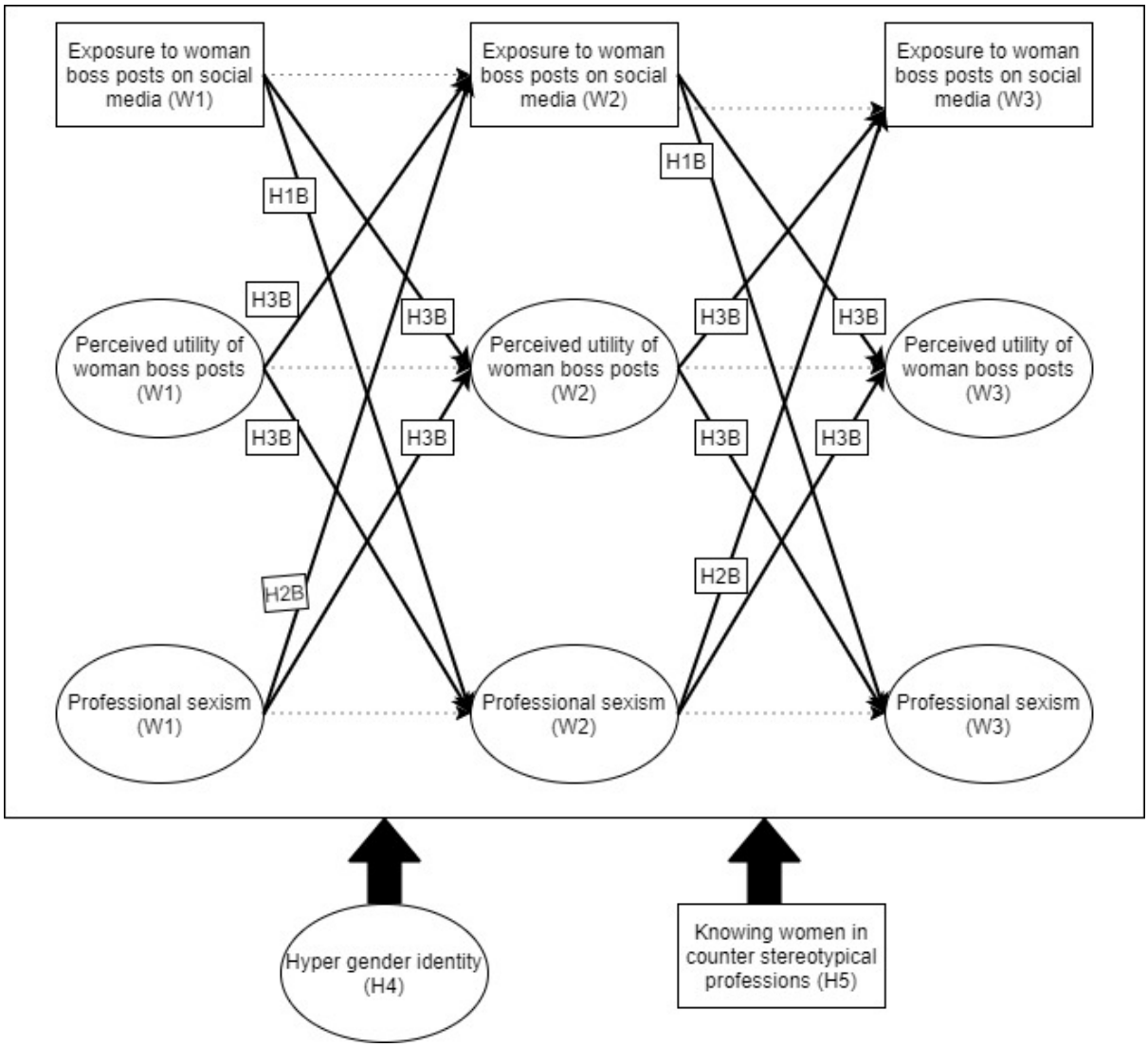
Hypothesized Model for Woman Boss Series



Note. For clarity, control variables, error terms and correlations between error terms are not shown.

Figure 2

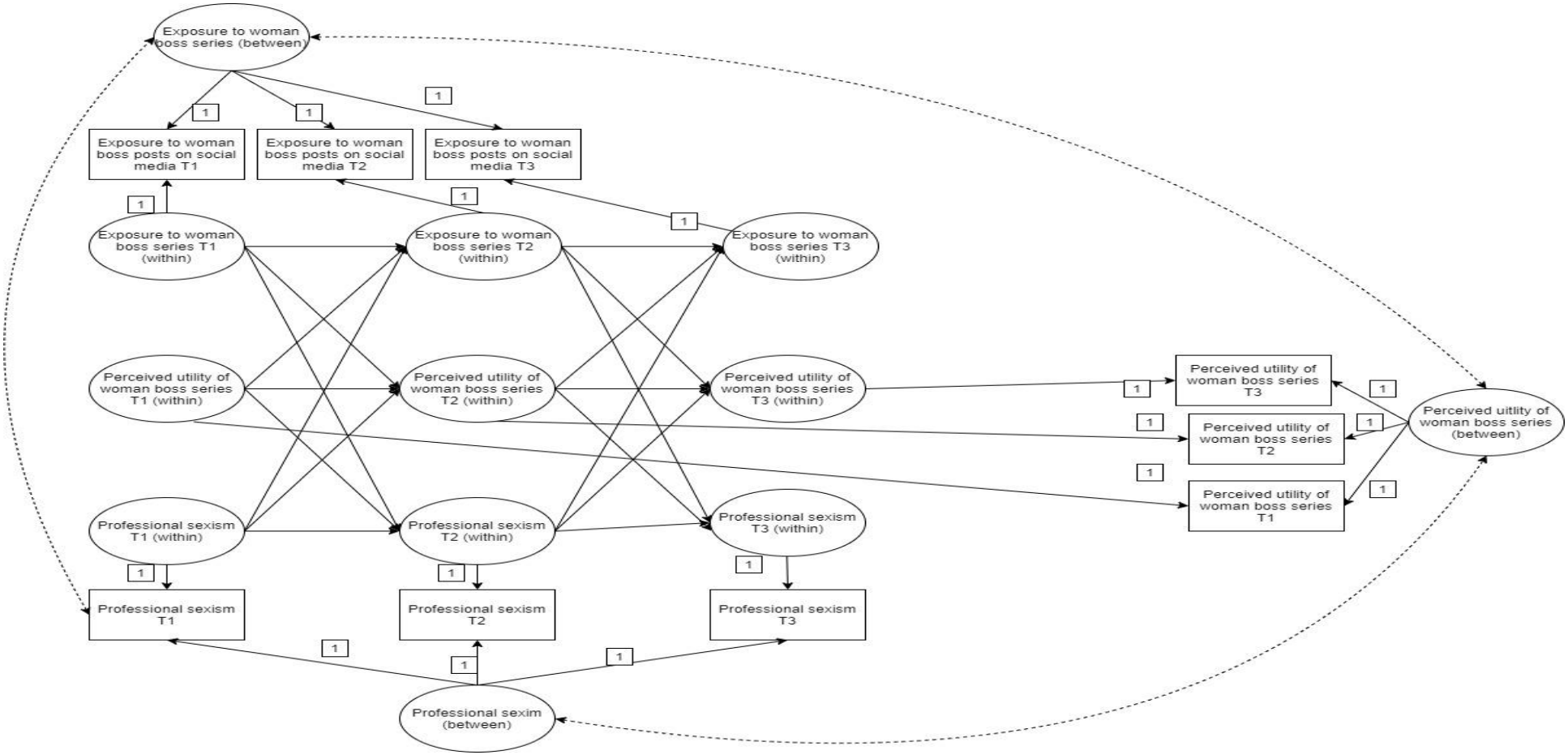
Hypothesized Model for Woman Boss Posts on Social Media



Note. For clarity, control variables, error terms and correlations between error terms are not shown.

Figure 3

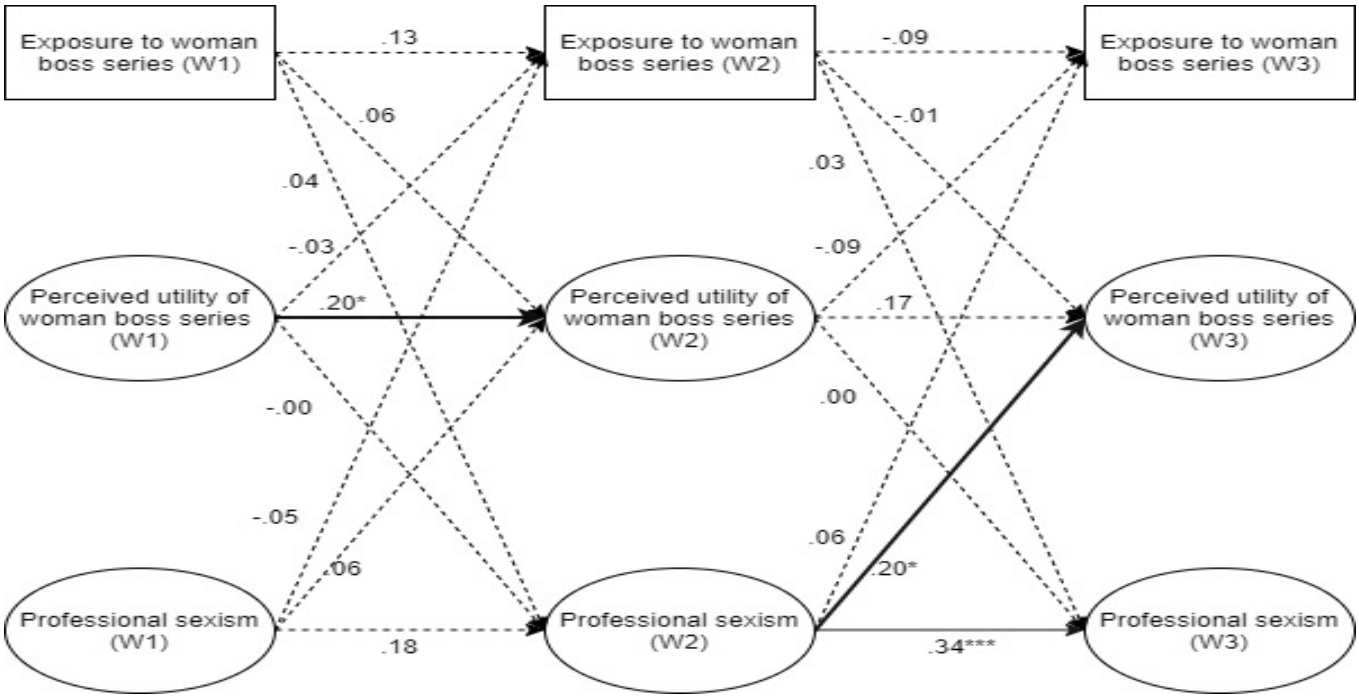
RI-CLPM of Woman Boss Series Model



Note. For clarity, control variables, error terms and correlations between error terms are not shown.

Figure 4

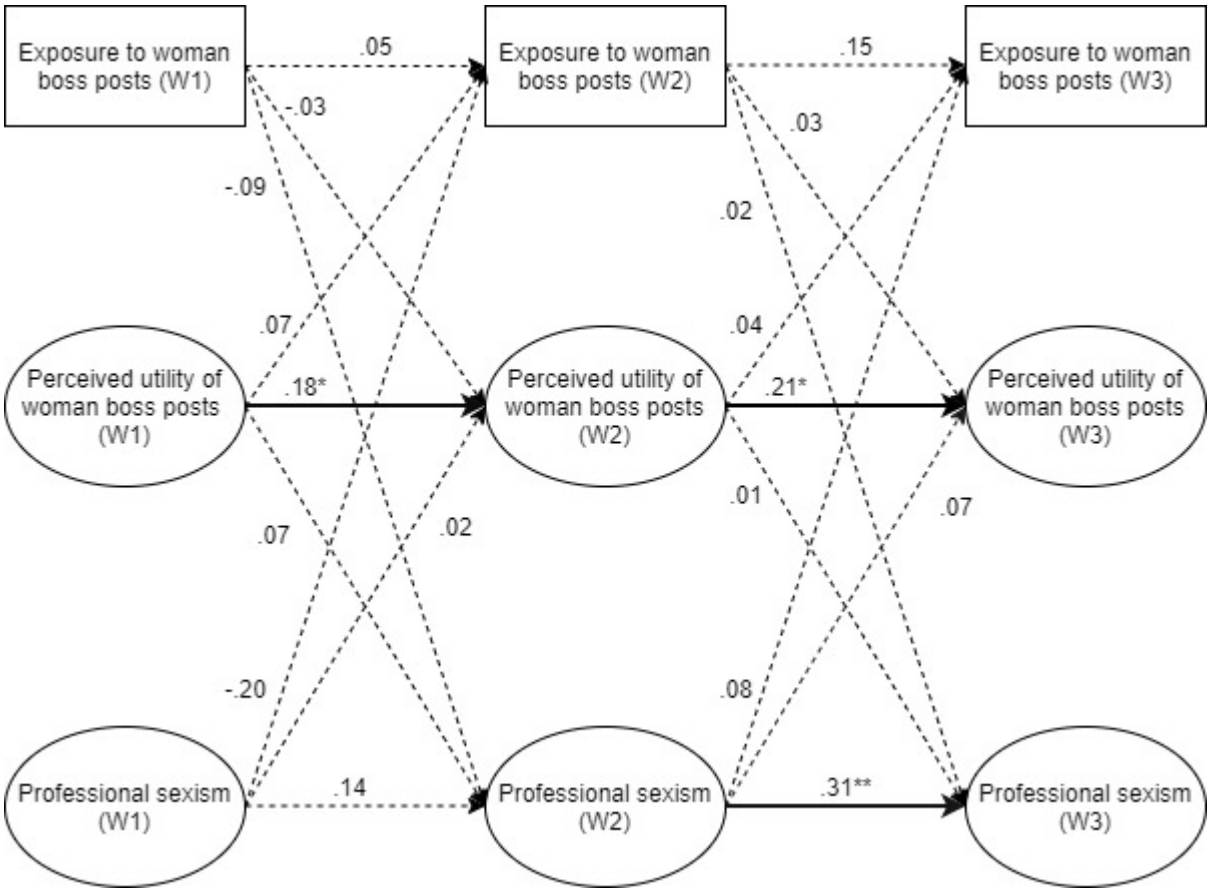
Results of the TV Series Model



Note. Dotted lines represent non-significant paths and full lines represent significant paths. The figure shows the within-level results. Coefficients represent standardized beta values. Error terms, covariances, control variables and between-person factors are not shown for clarity. **p* < .05; ***p* < .01, ****p* < .001.

Figure 5

Results of the Social Media Model



Note. Dotted lines represent non-significant paths and full lines represent significant paths. The figure shows the within-level results. Coefficients represent standardized beta values. Error terms, covariances, control variables and between-person factors are not shown for clarity. *p < .05; **p < .01, ***p < .001.