Morningness–eveningness and sociosexuality: Evening females are less restricted than morning ones

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ABSTRACT

Sociosexual orientation is a construct describing the propensity to engage in casual sex and sexual activity in uncommitted relationships, varying from restricted to unrestricted orientation. The personality profile of people exhibiting unrestricted sociosexuality matches a personality profile related to eveningness. Previous research on sociosexuality and morningness–eveningness is scarce, however, and conducted only with male participants. The present study aimed at testing whether eveningness is related to unrestricted sociosexuality in both genders. Participants were 352 (62.8% female) Poles aged between 17 and 57. They completed the reduced morningness–eveningness Questionnaire and the revised Sociosexual Orientation Inventory, consisting of three facets: behavior, attitude, and desire. The results revealed that females were more restricted than males in all facets of sociosexuality. Moreover, in both genders older age was related to less restricted behavior and attitude. Analyses showed that morningness–eveningness was unrelated to sociosexuality in males, but in females eveningness was linked to less restricted global sociosexuality ($\rho = -0.272$), and to less restricted sociosexual behavior ($\rho = -0.182$), attitude ($\rho = -0.275$) and desire ($\rho = -0.151$). Eveningness in females could be regarded as a contributory factor to the instability of romantic relationships and high-risk sexual behaviors.

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1. Introduction

Circadian regularity exists in a number of human functions, behavioral, psychological and physiological (Monk et al., 1997). There are, however, robust individual differences in circadian rhythms called chronotype, which can be expressed on a continuum with poles labeled morningness–eveningness. More morning-oriented subjects prefer earlier times of day for various activities, such as physical and intellectual ones, and this preference is accompanied by a time shift in the rhythms of many psychological and physiological functions or hormone secretion (Adan et al., 2012). For example, the highest levels of energetic arousal occur between 09.30 and 12.30 in morning types, but at 20.00 or later in evening types (Jankowski & Ciarkowska, 2008). As regards the most endogenous circadian rhythms, morning subjects, compared to evening ones, have an earlier occurrence of the onset of melatonin secretion (Burgess & Fogg, 2008) or earlier peak in cortisol rhythm by 55 min and in body temperature by 68 min

(Bailey & Heitkemper, 2001). Both in the above and the following studies morningness–eveningness Questionnaire (Horne & Östberg, 1976) or its derivatives have been used to assess chronotype, thus all these studies indicate the relevance of self-reported measurement of circadian preference.

Apart from differences in circadian phase position, individuals with different morningness–eveningness levels vary in many more characteristics. For example, diurnal profiles of evening types revealed higher heart rate, systolic blood pressure (Roeser et al., 2012) and pain sensitivity (Jankowski, 2013a) regardless of time of day, and higher morning testosterone levels (Randler et al., 2012a) compared with morning types. The above physiological/hormonal differences between individuals with various morningness–eveningness levels might translate into behavioral or psychological outcomes, but the direct biology-psychology links could be rather only hypothesized. For instance, eveningness has been related to increased exposure to light at night (Vollmer, Ulrich, & Randler, 2012), which is a considered factor suppressing nocturnal melatonin levels (Reiter et al., 2007). On the other hand, suppression of nocturnal melatonin by environmental factors has been linked to esoteric perceptions and behaviors (Persinger, 1988, 1993). Nevertheless, hormone levels have not been extensively

tested as direct mediators of relationships between psychological outcomes and morningness–eveningness.

As regards psychological outcomes, evening types have been characterized as creative, intuitive, affective and inclined to cultural individualism, whereas morning types prefer verbal and analytic strategies in information processing, and exhibit cultural collectivism (Díaz-Morales & Escribano, 2013). Moreover, eveningness has been linked with lower endurance (Jankowski, 2012a), life satisfaction (Díaz-Morales, Jankowski, Vollmer, & Randler, 2013; Jankowski, 2012b), and mood (Jankowski, 2014a; Merikanto et al., 2013; Randler, Stadler, Vollmer, & Diaz-Morales, 2012).

Furthermore, an interesting profile of personality aspects has been linked with eveningness: namely dysfunctional impulsivity (Adan, Natale, Caci, & Prat, 2010; Selvi et al., 2011), impulsive sensation-seeking (Muro, Gomà-i-Freixanet, Adan, & Cladellas, 2011), novelty-seeking (Randler & Saliger, 2011), greater openness to experience, extraversion, lower agreeableness and lower conscientiousness (Tsaousis, 2010), lower self-control (Digdon & Howell, 2008) and self-directedness (Adan et al., 2010), and higher levels of Dark Triad traits (narcissism, machiavellianism, and psychopathy; Jonason, Jones, & Lyons, 2013).

The above personality profile, largely exhibited by evening individuals, has also been linked with unrestricted sociosexual orientation, which is a propensity to engage in casual sex or sexual activity in uncommitted relationships, with restricted sociosexuality at the opposite pole (Penke & Asendorpf, 2008). Namely, unrestricted sociosexuality has been linked with greater impulsivity and propensity to take risk (Seal & Agostinelli, 1994), openness to experience (Lameiras Fernández & Rodríguez Castro, 2003), extraversion, lower agreeableness and lower conscientiousness (Schmitt, 2004), lower self-monitoring (Sakaguchi, Sakai, Ueda, & Hasegawa, 2007), and higher levels of Dark Triad traits (Foster, Shrira, & Campbell, 2006; Jonason, Li, Webster, & Schmitt, 2009). Unrestricted sociosexuality is a predictor of the instability of romantic relationships (Simpson, Wilson, & Winterheld, 2004) and high-risk sexual behaviors (Seal & Agostinelli, 1994). Seen from a sociobiological perspective, sociosexuality can be a predictor of mating success – unrestricted sociosexuality is related to higher testosterone levels in partnered individuals and to single relationship status (Edelstein, Chopik, & Kean, 2011).

Not only is personality profile common to eveningness and unrestricted sociosexuality. In male German students, eveningness was linked with higher mating success – defined as a greater number of sexual partners in the lifespan, sexual partners mated with others, and extra-pair sexual partners during committed relationships (Randler et al., 2012b). A greater number of sexual partners in the lifespan was also linked with eveningness in Sri Lankan males (Gunawardane, Custance, & Piffer, 2011). However, a number of sexual partners in the past is only the one of a few aspects of sociosexual orientation. Namely, Penke and Asendorpf (2008) distinguished three aspects of sociosexuality: behavior, attitude, and desire; thus, a number of sexual partners in a lifespan reflects only behavioral aspect of sociosexual orientation.

The main aim of the present study was to test whether individuals with various eveningness levels differed in their sociosexual orientation. Given the presented findings it could be expected that more evening oriented subjects would display more unrestricted sociosexuality; however, previous studies on eveningness and sexual behavior were limited to males, and therefore we considered the two genders. We also used a multidimensional approach to sociosexual orientation, which allowed us to distinguish its separate facets: behavior, attitude, and desire. The second goal of this research was to show the role of age and gender in multidimensional sociosexual orientation, as no such data from Poland have been published so far.

2. Methods

2.1. Measures

Sociosexual orientation was measured with the revised Sociosexual Orientation Inventory (SOI-R) by Penke and Asendorpf (2008) in a Polish translation provided by the first author of this paper, which was then accepted by the author of the original inventory (www.larspenke.eu). Higher scores in SOI-R indicated unrestricted sociosexuality, whereas lower scores indicated more restricted orientation. The scale used in the study has nine items with a nine-point Likert scale response format. It allows for quantification of three facets of sociosexual orientation, i.e. behavior, attitude, desire, and a total score. Each of the three subscales consists of three items. A sample questions are: behavior "With how many different partners have you had sex within the past 12 months? (0, 1, 2, 3, 4, 5–6, 7–9, 10–19, 20 or more)"; attitude "Sex without love is OK (strongly disagree – strongly agree)"; desire "In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met? (never, very seldom, about once every 2 weeks, about once a week, several times per week, nearly every day, at least once a day)". Typically, scores of each scale are expressed as the average of scores obtained from adherent items, and the total score is an average of the scores for the three facets. This allows for comparisons between subscales and total score, and produces values between one and nine for each subscale and for the total score. Cronbach's α in the original version and in the present research were high for behavior (0.85 and 0.79), attitude (0.87 and 0.82), and desire (0.86 and 0.88), and the total score (0.83 and 0.87). SOI-R total score and its subscales were related to various sexual/mating behaviors, for example, behavior facet was linked to a greater number of prior sexual partners, while attitude and desire were associated with interest in short-term mating (Penke & Asendorpf, 2008).

Morningness–eveningness preference was assessed with the Polish version of the reduced morningness–eveningness Questionnaire (Jankowski, 2013b). The scale has four Likert-type items scored with four or five response options. A sample question is: "What time would you get up if you were entirely free to plan your day? (5:00–6:30, 6:30–7:45, 7:45–9:45, 9:45–11:00, 11:00–12:00)". Higher scores indicate greater morningness (lower eveningness), whereas lower scores indicate lower morningness (greater eveningness). Internal consistency for the scale as indicated by Cronbach's α was 0.73 in the previous study and 0.77 in the present one, thus it meets recognized criterion for acceptable internal consistency (Kline, 1986). The relationship between rMEQ and the full morningness–eveningness Questionnaire proved to be high ($r = 0.89$; Jankowski, 2013b).

Demographic variables included gender, age, sexual orientation, place of residence (village, city of under 500,000 inhabitants, city of 500,000 or more inhabitants), education (primary, vocational, secondary, higher), occupation (student, employee, unemployed, retired), marital status (single, in relationship and living apart, in relationship and living together, married) number of children (and whether they lived together in the same household).

2.2. Participants and procedure

Participants were 352 (62.8% females) Polish internet users aged between 17 and 57 ($M = 26.16$, $SD = 5.61$). Males ($M = 27.09$, $SD = 6.09$) were slightly older than females ($M = 25.61$, $SD = 5.24$) ($t_{(342)} = 2.38$, $p < 0.05$), however gender distribution did not differ significantly between age groups of 17–36 yrs and 37–57 yrs ($\chi^2_{(1)} = 0.33$, $p = 0.565$). Some 68.9% were residents of cities of