

Autonomy-Connectedness and Gender

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Abstract The present study aimed to examine gender differences in autonomy-connectedness in a large, Dutch, representative community sample ($N=2,256$). All participants completed the Autonomy-Connectedness-Scale (ACS-30; Bekker and van Assen, *J Pers Assess* 86:51–60, 2006) with subscales self-awareness (SA), sensitivity to others (SO), and capacity to manage new situations (CMNS), and a scale measuring demographic factors. We found much higher SO in women than in men, and slightly higher scores of men on SA and CMNS. Associations between SO and socio-demographic variables related to caring for others could be completely explained by gender, while the associations between SA and CMNS with socio-economic independence variables could only partly be explained by gender. ACS-30 norm scores are presented, and clinical implications of our results are discussed.

Keywords Autonomy · Connectedness · Self-awareness · Sensitivity to others · Sex differences · Gender

Introduction

Many gender stereotypes exist; however, many presumed psychological gender differences are not univocally supported by gender-sensitive empirical evidence. Examples are gender differences in aggression (e.g., see Crick and Rose 2000), achievement motivation (e.g., Hyde and Kling 2001), and openness to new experiences (Costa et

al. 2001). In the current study, we examined possible gender differences in autonomy-connectedness. Autonomy-connectedness is defined as the need and capacity for self-reliance and independence, as well as for intimacy and functioning satisfactorily in intimate relationships (e.g., see Bekker 1993; Hmel and Pincus 2002; Bekker and van Assen 2006). This concept has been derived from attachment theory (Bowlby 1969; 1973) together with feminist, neo-analytical object-relation theory (e.g., Chodorow 1989). According to the attachment theory an autonomous “self” results from secure attachment experiences. However, gender differences in self-images, thus gender-identity, remain unexplained within this perspective. The neo-analytical object-relation theory pays attention to gender, which can be described as the socio-cultural meaning of masculinity and femininity reflected in men’s as well as women’s personal gender identity (e.g., Oakley 1972; Bebbington 1996). This is done by acknowledging that adult identity may differ between men and women due to the fact that the primary attachment person in the lives of both is, at least in large parts of the world, usually a woman, their mother (for further details, see Bekker 1993; Bekker and van Assen 2006).

The study of individual differences in this domain is particularly important, as defects in autonomy-connectedness can be seen as the core of psychopathology (e.g., Beck 1983; Laor 1982). Gender differences in autonomy-connectedness are potentially relevant because they might contribute to the explanation of the variety of mental disorders with an unequal prevalence in men and women, e.g., eating disorders, antisocial personality disorder, anxiety disorders, etc. (APA 2000).

In order to obtain more insight in the nature of possible gender differences in autonomy-connectedness, we examined the relationship between autonomy-connectedness and being male or female in a large, representative, Dutch community sample. Autonomy-connectedness was assessed

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using the Autonomy-Connectedness Scale-30 (ACS-30; Bekker and van Assen 2006), a validated short version of the Autonomy scale (Bekker 1993). By examining a Dutch sample we hoped to extend earlier research to this new cultural context. Moreover, as possible gender differences in autonomy were not yet studied, at least to our awareness, in relation to gender differences in socio-demographic variables, we also examined this relation. Some socio-demographic positions (e.g., being self-employed) can be expected to require more autonomy than others (e.g., having no paid work). We examined to what extent possible autonomy differences in socio-demographic positions can be explained by gender.

Before further outlining the design and main hypotheses of our study we will below first discuss the existing literature regarding possible gender differences in autonomy and/or connectedness, describe potentially relevant aspects of the social selves of men and women in more detail, and elaborate on, respectively, the cultural context and the clinical relevance of autonomy-connectedness.

Are There Gender Differences in Autonomy and Connectedness?

Many authors define psychological autonomy as self-governance (Hmel and Pincus 2002). Results of research on the existence of gender differences in autonomy are mixed. For example, Bar-Tal et al. (2006) found, in an Israeli sample, identical levels of “perceived control” in men and women, in contrast to reports in terms of “mastery versus helplessness” by, for example, Nolen-Hoeksema et al. (1999). The latter results obtained in the USA are in line with clinical observations indicating lower autonomy in women (e.g., Chodorow 1978) or, positively valued, more flexibility in women’s “ego boundaries” (i.e., sense of personal, psychological division from the rest of the world; Chodorow 1989; Baker-Miller et al. 1991). As the variety of labels demonstrates, the mixed results on gender differences in autonomy might at least partially result from the use of different measures of autonomy. However, also cross-cultural (sample) differences might play a role. Notice, for example, that the last mentioned authors (as well as the majority of those whose work we review) derived their data and observations from North-America and the first authors referred to in this paragraph, from Israel.

At a more conceptual level, the mixed results might also be due to the various ways in which autonomy is defined in relation to connectedness. In many cases, autonomy is considered as the opposite of connectedness; because women compared with men are often ascribed higher levels of connectedness (e.g., Lee et al. 2001; Taylor et al. 2000; Nolen-Hoeksema and Jackson 2001), they are then automatically also lower in autonomy. But what is connectedness,

and what gender differences have been reported in this domain?

Connectedness has been defined as the subjective experience of interpersonal closeness (Townsend and McWhirter 2005), involving the capacity for empathy and relating to others (e.g., see Baker Miller 1976; Olweus and Endreson 1998; Surrey 1983). It overlaps with social and emotional intelligence in its emphasis on effectively *understanding others and relating with them* (Bar-On 2000). Connectedness can also be regarded as a more feminine style of being in the social world, the so-called “self-in-relation” (Baker-Miller et al. 1991) or “communion” (Helgeson and Fritzi 1998). (Of course, these associations between femininity and certain psychological characteristics are, if true at all, only true within a certain cultural context.) Because the self-in-relation can be confused with dependence, “neediness” (Rude and Burnham 1995), or “unmitigated communion” (Helgeson and Fritzi 1998), women’s higher connectedness, self-in-relation, or communion might erroneously be considered reflecting lower autonomy. Also when defined as belongingness (e.g., Baumeister and Sommer 1997; Cross and Madson 1997), female connectedness might be easily confused with lower autonomy, because men’s belongingness would—from this perspective—be expressed by having a higher number of large group associations, and women’s belongingness by more intimate dyadic relationships. Also other, specific manifestations of connectedness by women have been reported in the literature that might also be confused with lower autonomy. For example, when under stress, e.g., exposed to loud noises, women seem to increase their liking of familiar others, whereas the same exposure leads men to decreased liking of these others (Bull 1972). Women showed increased affiliation under stress (e.g., Lengua and Stormshak 2000), and higher levels of social support seeking as well as giving (e.g., McDonald and Korabik 1991; Ogus et al. 1990), which has been labelled “tend-and-befriend” (for a review, see Taylor et al. 2000). Girls as well as women experience conflicts as more stressful than do men (Compas et al. 1993; El-Sheikh et al. 2000; Nolen-Hoeksema and Jackson 2001), and tend to ruminate more under stress. This may be due to their higher tendency to affiliation (Wagner and Compas 1990) but also to their conviction that they are responsible for the tone of interpersonal relationships (Nolen-Hoeksema and Jackson 2001). (Western) boys and men, on their turn, would define their masculine identity in terms of the absence of femininity, denial of attachment, and separation (e.g., Chodorow 1978). Their ability to “empathise”, i.e., the drive to identify another person’s emotions and thoughts, and to respond to these with an appropriate emotion (Baron-Cohen 2002), would, according to Chodorow (1978) be lower.

However, there are also indications that connectedness is equally salient in both women’s and men’s lives. Research

among college students by Lee and Robbins (2000) suggests that not the levels of connectedness differ between men and women, but the types of relationships and the kinds of social provision contributing to connectedness (see also Townsend and McWhirter 2005). For the men in their study, particularly relationships emphasizing social comparison played an important role, whereas for women relationships characterized by intimacy and reliable alliance were important. Nevertheless, in another study by Lee and colleagues levels of connectedness were—again—higher in women than in men (Lee et al. 2002).

In short, whether or not there are gender differences in autonomy seems to depend, aside from the measures used, also on the conceptual association of autonomy with connectedness. The fact that women compared with men seem to have specific expressions of and motivations for connectedness might erroneously have been held for lower autonomy. In the present paper, we used a multi-dimensional concept and measure of autonomy(-connectedness), the Autonomy-Connectedness Scale (ACS-30; Bekker and van Assen 2006), enabling the establishment of gender differences on one component separately without necessarily leading to the general conclusion that women compared with men are less autonomous. Autonomy-connectedness has three components, namely self-Awareness (SA), the capacity to be aware of one's own opinions, wishes, and needs, and the capacity to express these in social interactions; sensitivity to others (SO), reflecting sensitivity to the opinions, wishes, and needs of other people; empathy; and capacity and need for intimacy and separation; and capacity for managing new situations (CMNS) which comprises (un-)easy feelings in new situations, flexibility, an inclination to exploration, and dependence on familiar structures, and reflects the drive for exploration. Women might—based on their usually higher levels of connectedness, have higher SO without necessarily being lower on SA and CMNS. These higher levels of SO in women compared to men were indeed found in previous research (Bekker and van Assen 2006), together with—although slightly—lower SA and CMNS on their part.

In addition, socio-demographic variables and gender differences therein might be associated with autonomy and connectedness. For example, self-governance, one of the main components of autonomy, (Hmel and Pincus 2002) and closely related to self-awareness and capacity for managing new situations, might plausibly be facilitated by socioeconomic independence factors such as socioeconomic status, education, and income, which are commonly higher in men than in women. Moreover, caring for others, reflected in, e.g., working in the own household, is still more often a woman's than a man's primary occupation and may easily evoke the manifestation of higher levels of empathy and connectedness (e.g., see Gilligan 1982) that are closely

related to sensitivity to others. It is therefore important to examine to what degree gender can explain differences in autonomy-connectedness with respect to differences in socio-economic positions.

The Cultural Context of Autonomy-Connectedness

Authors such as Chodorow (1978, 1989) claimed that the role of the mother as the primary attachment figure is an almost universal phenomenon implying that the resulting gender differences in autonomy-connectedness will be universal as well. However, there are reasons to assume that child-rearing practices as well as manifestations of autonomy-connectedness including their relationships with gender might vary cross-culturally.

For example, cultures have been described as varying along Hofstede's famous dimension of individualism versus collectivism (I/C; e.g., Hofstede 1980, 1997; Hofstede and Bond 1984). IC expresses the individual's relationship with the group and the society. Individuals in individualistic societies would primarily see themselves in terms of 'I', and they would distinguish each other more by means of personality traits than by group positions. Individual interests and rights would prevail above those of the group. In collectivistic societies—emphasizing the interest of the group, individuals would predominantly be group members; their identity, being more a 'we'-identity, would thus primarily reflect their participation in the group.

Although various authors have criticized the I/C distinction (e.g., Allik and Realo 2004; Matsumoto 1999; Oyserman et al. 2002) there are indications that the cultural value 'independence' as a self-ideal is more common within countries labelled as individualistic (e.g., North-America, The Netherlands), whereas 'interdependence' would be a more typical value in countries labelled to be collectivistic (e.g., Costa Rica, Thailand). Since adherence to independence has been shown to contribute to self-awareness, and adherence to interdependence to sensitivity to others (Bekker and Arends-Tóth, submitted), autonomy-connectedness patterns can be assumed to be sensitive to cross-cultural I/C variation.

In the same vein, Hofstede (1980, 1997) postulated another important cultural dimension, namely masculinity/femininity (M/F) or the value placed on traditionally masculine or feminine values (as understood in most Western-European countries and Northern-America). Within high masculinity-countries (e.g., Japan) gender roles would be clearly distinct, whereas in countries labeled as low masculinity/high femininity (e.g., Sweden), only a weak gender differentiation would exist. From this perspective, the aforementioned gender differences in autonomy-connectedness might also vary along the cultural M/F dimension.

Last but not least, presumed and established correlates of autonomy-connectedness most plausibly vary across cultures, such as socio-economic positions (see previous section) and types of psychopathology (see next section). For example, in The Netherlands, the country where we acquired our research sample, not as many women than in the USA have paid work outside the house, and the majority of these Dutch women work part time, a unique phenomenon in the world (e.g., see Gjerdingen et al. 2000). Thus, although the present study does not concern cross-cultural research, we hope to have made clear that the issues under study should be seen and interpreted within the specific cultural context.

Clinical Relevance of Autonomy-connectedness

Why should we study gender differences in autonomy-connectedness? Differences in sensitivity to others, one of the three autonomy scales of the ACS-30, are clinically relevant. Although relatively high levels of sensitivity to others might belong to the normal feminine identity, extremely high sensitivity to others reflecting neediness (Rude and Burnham 1995) is a risk factor for psychopathology with a higher prevalence in women than in men, e.g., depression and anxiety (Bekker and Belt 2006) and eating disorders (Bekker et al. *under review*). (Notice here, too, that the usual prevalence figures reported in DSM IV-tr [APA 2000] refer to the Western-European countries and North-America, as does most of the other literature reported in this paper). In such cases high sensitivity to others often coincides with low self-awareness, i.e., awareness of one's own wishes, needs and opinions as well as assertiveness in realizing these (see also Brown and Gilligan 1992; Gilligan 1982; Gilligan et al. 1991; Taylor et al. 1995). Also, fear of rejection might play a role, as well as willingness to put others' needs, interests and desires above those of one's own, and to suppress negative affect (e.g., Bekker et al. *under review*; Cockell et al. 1997; Geller et al. 2000). Whereas over-sensitivity to others might play an important role in mental disorders occurring more frequently in women than in men, under-sensitivity to others might substantially affect psychopathology with a higher prevalence in men. For example, antisocial behaviour might be affected by extreme tendencies toward detachment and separation, i.e., by under-sensitivity to others, especially to potential victims (e.g., Bekker et al. 2007; Hoffmann et al. 2004).

Considering the sensitivity to others a core aspect of psychopathology with an unequal prevalence among men and women might be a fruitful perspective, but this depends on the robustness of the gender difference on this factor. The (large) gender difference in sensitivity to others, measured with the ACS-30 (Bekker and van Assen 2006),

the measurement instrument of autonomy-connectedness we also employ in this study, has repeatedly and consistently been found in non-random, rather specific samples. Among the populations investigated were college students (e.g., Bekker and van Assen 2006; see also Lee et al. 2001), primary health care patients (Bekker and Belt 2006), participants of work stress prevention training (Bekker et al. 2001), and women suffering from eating or anxiety disorders (Bekker 1993; Bekker et al. *under review*). Further research on autonomy-connectedness, gender differences and psychopathology will be aided by more firm empirical evidence for gender differences in sensitivity to others.

Study Aims and Hypotheses

Figure 1 depicts the causal model of the associations between gender, socio-demography, and autonomy-connectedness (ACS). The numbers next to the arrows correspond to the hypotheses on the relations corresponding to these arrows, which are discussed in detail below.

A first aim of the present study was to investigate for the first time the relationships between autonomy-connectedness components and gender in a large representative community sample. Based on the theoretical considerations above as well as using the results of previous studies on the ACS-30 the first hypothesis was derived:

Hypothesis 1: Relations between autonomy-connectedness and gender

- H1a: On average women have higher sensitivity to others than men
- H1b: On average men have higher self-awareness than women
- H1c: On average men have higher capacity for managing new situations than women

Our second goal was to assess the relations between a person's autonomy-connectedness on the one hand and his or her socio-demography on the other hand, and to what extent these relations could be explained by gender (being

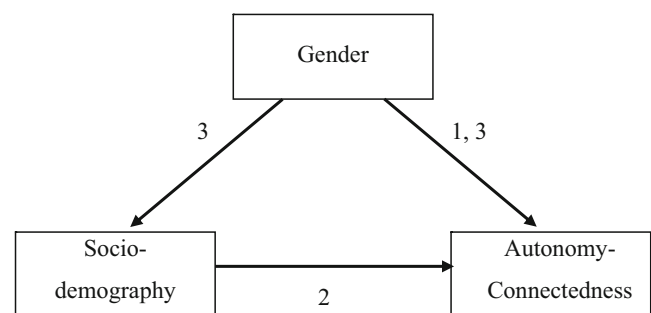


Fig. 1 Causal model of the associations between gender, socio-demography, and autonomy-connected (ACS). The numbers next to the arrows correspond to the hypotheses on the relations corresponding to these arrows.

male or female). In hypothesis 2 our hypotheses are summarized concerning the relations between autonomy-connectedness and socio-demographic variables:

Hypothesis 2: Relations between autonomy-connectedness and socio-demographic variables

H2a: Self-awareness and capacity for managing new situations are positively associated to socioeconomic independence variables (SES, education, income)

H2b: Sensitivity to others is positively associated to caring for others variables (number of household members, number of children in the household, working in own household as primary occupation)

We expected that at least part of these associations as hypothesized in H2a and H2b could be explained by gender. For example, if persons working in their own household were found to be more sensitive to others than persons working in their own business (paid work), we expected that at least part of this difference would be explained by the observation that more women work in their own household and more men work in their own business. Using a more methodological terminology, we expected that at least part of the associations between autonomy-connectedness and socio-demographic variables is spurious and can be explained by gender. Gender explains at least part of these associations if gender is associated to both (1) socio-demographic variables, and (2) autonomy-connectedness, as expressed in hypotheses H3a and H3b, and as indicated by the numbers ‘3’ in Fig. 1:

Hypothesis 3: Relations between autonomy-connectedness and socio-demographic variables, controlled for gender

H3a: The positive association between self-awareness and capacity for managing new situations on the one hand and socioeconomic independence variables on the other hand are at least partly explained by gender: (1) gender is associated to self-awareness and capacity for managing new situations, (2) gender is associated to the socioeconomic variables.

H3b: The positive association between sensitivity to others and caring for others variables is at least partly explained by gender: (1) gender is associated to sensitivity to others, (2) gender is associated to the caring for others variables.

Note that H3a (H3b) can only be corroborated if H1a/H1b (H1c) is corroborated, as indicated by number 1 in Fig. 1.

The logic of our analysis in general and hypothesis 3 in particular follows Baron and Kenny (1986) who test for

mediation. After finding a significant effect of X on Y (step 1), and of X on the mediator (step 2), they test if the mediator is related to Y and hence explains at least part of the effect of X on Y (step 3). In H3a and H3b we check if gender explains at least part of the relation between autonomy-connectedness and socio-demographic variables, similar to step 3 of Baron and Kenny 1986.

In step 4 of their mediation analysis Baron and Kenny (1986) establish if the mediation is complete, or only partial. Similarly, we check if gender completely explains all of the associations between the socio-demographic variables and autonomy-connectedness. Following Baron and Kenny (1986), the explanation is said to be complete if the effect of socio-demography on autonomy-connectedness (2 in Fig. 1) is no longer significant after controlling for gender.

Finally, an important additional goal of the study was to construct, if needed, (gender-specific) norm tables for the three components of autonomy-connectedness.

Method

Sample

The sample in the present study was the so-called CentERpanel. This panel consists of over 2,000 households in The Netherlands (see <http://www.uvt.nl/centerdata/en/whatwedo/thecenterpanel/> for a detailed description). The sample is representative for the Dutch population with respect to gender, age, educational level, religion, residence, household composition, and household size (the description at the aforementioned site also contains a link to a document with statistics demonstrating the sample’s representative character). Of all members of the panel, 2,256 (79%) completed the questionnaire. Of these respondents, the answers of 52 cases (2.3%) were discarded because these cases had too many missing values (15) or consistently gave either strongly positive or negative answers, irrespective of the phrasing of the items. Hence, the analyses were carried out on 2,204 cases.

Procedure

Every week the panel members voluntarily complete a questionnaire on the Internet from their home. The questionnaire can be developed by researchers from any discipline and can deal with any topic. Each year, the respondents complete about fifty questionnaires. Members only obtain financial compensation for the costs of using Internet to complete the questionnaire. A household without Internet access is supplied with a so-called set-top box with which questionnaires can be completed using a television screen as a monitor. After having completed the questionnaire

the respondents have the option to close the questionnaire, or to modify it at a later time. They also have the option to stop the completion temporarily and to continue at a later time. The respondents are guaranteed anonymity.

The questionnaire relevant to the present study was completed in week 40 of 2005. The panel members received the questionnaire on Friday and could complete it until the Tuesday four days later. The members who did not react on Monday or earlier received a reminder.

Measures

Our measures were the ACS-30 and a questionnaire containing general questions concerning the socio-demographic characteristics of the respondent including unpaid work responsibilities and activities.

The 30 items of the ACS-30 are divided into the three subscales in the following way: 7 items for Self-awareness (SA), 17 items for Sensitivity to others (SO), 6 item for Capacity for managing new situations (CMNS). Definitions of the scales reflecting the three autonomy-connectedness components can be found in “[Introduction](#).” Examples of the SA, SO, and CMNS subscales are “Usually it is very clear to me what I like most”, “I often go deeply into other people’s feelings”, and “I am a very adventurous person”, respectively. These and all other items of the ACS-30 can be found in Bekker and van Assen (2006: 54). Every item has five answering categories, namely, 1 ‘disagree’, 2 ‘disagree slightly’, 3 ‘disagree slightly and agree slightly’, 4 ‘agree slightly’, 5 ‘agree’.

The ACS-30 appeared to have good psychometric properties in various studies (for further details see Bekker 1993; Bekker et al. 2001; Bekker and van Assen 2006). Bekker and van Assen examined the structure of the ACS-30 as well as its reliability and validity using a sample of 591 students of social sciences. Both exploratory and confirmatory factor analysis confirmed the 3-factor structure with factors SA, CMNS, and SO. The reliability as measured by internal consistency measure Cronbach’s alpha was good; .81, .82, .83 for of SA, CMNS, SO, respectively, and all items contributed to the internal consistency (as measured by the corrected item-total correlation) of their own scale. The construct validity of the scale was evaluated to be good since the correlations between each of the subscales on the one hand and personality and mental health variables on the other hand had the expected sign and strength in two different samples (Bekker and van Assen 2006). They also observed, in agreement with the presumed gender differences in connectedness, that women on average had higher levels of sensitivity to others (Cohen’s $d=1.02$, representing a large effect). Men on average had higher levels of SA and CMNS, although these gender differences were small

($d=.17$, $d=.30$, for SA and CMNS, respectively). Cohen’s d is a measure of effect size constructed for the case where two means are compared. Cohen (1988) defined effect sizes as “small, $d=.2$,” “medium, $d=.5$,” and “large, $d=.8$ ”.

The results of the exploratory and confirmatory factor analysis, and of the reliability analyses on the data of the present study were in agreement with the results reported by Bekker and van Assen (2006). The three factors corresponded to the three subscales SO, CMNS, and SA, and all factor loadings on the items corresponding to the factor were larger than .3. Cronbach’s alpha coefficients for SO, CMNS, and SA were .82, .78, and .78, respectively. Scale scores were constructed by creating sum scores for each of the three subscales. The correlations between the scales’ scores were $-.34$ between SA and SO, $-.31$ between CMNS and SO, and $.46$ between CMNS and SA.

The socio-demographic questions concerned the respondent’s *gender*, *age in years*, *highest education regardless of certificate* (nine categories), *highest education with certificate* (same nine categories), *Socioeconomic status* (SES; five ordinal categories, from ‘low’ to ‘high’, determined by the organization collecting the data using a complicated procedure involving several variables such as education, type of job, amount of working hours), *position in the household* (seven categories: ‘head of the household’, i.e., the person who, according to the contract, hired or bought the house, or the person of the household with the highest income, ‘spouse’, ‘permanent partner (not married)’, ‘parent (in law)’, ‘child living at home’, ‘housemate’, ‘member of family or border’), *number of household members*, *number of children living in the household*, *having partner* (i.e., ‘Does the head of the household live together with a partner (married or unmarried)’), *household composition* (five categories: ‘is living by himself/herself’, ‘living together, no children at home’, ‘living together plus children’, ‘living without a partner, with children’, ‘other’), *primary occupation* (thirteen categories: ‘employed on a contractual basis’, ‘works in own business’, ‘free profession, freelance, self-employed’, ‘looking for work after having lost job’, ‘looking for first-time work’, ‘student’, ‘works in own household’, ‘retired (pre-retired, AOW, VUT)’, ‘partly disabled’, ‘unpaid work, keeping benefit payments’, ‘works as a volunteer’, ‘other occupation’, ‘too young, has no occupation yet’), *gross income* (in euros, with additional categories ‘I really do not know’, ‘I do not want to say’), *net income* (same), *gross income household* (addition of gross incomes of household members for which the income is known), *net income household* (same), *native country*, *native country father*, *native country mother*. The latter three variables are combined to construct the variable ‘ethnicity’. *Ethnicity* has five categories: native, first generation western non-native, first generation non-western non-native, second generation western non-native, second generation non-western non-

native. A first generation non-native respondent is born in another country than The Netherlands, together with at least one of his or her parents. A second generation non-native has at least one parent born in another country, but the respondent him- or herself is born in The Netherlands. The group of western non-natives is commonly defined as people born in Europe, Indonesia, North America, and Japan.

Results

Characteristics of Sample

Of the 2,204 cases, 1,147 were men (52.0%). The average age was 47.70 years ($SD=16.13$ years; range=16–90 years; quartiles 34, 47, 60 years). The average monthly net income of men was 1,749 euros ($SD=1,312$), which was significantly larger than the monthly income of women ($M=868$, $SD=1,129$, $t(2165)=16.67$, $p<.001$). The net income difference was moderate to large (eta squared=.113).

Although the sample was representative with respect to many socio-demographic variables, comparing the sample data to the population data revealed that native Dutch participants were over-represented in the sample; 81.1% and 91.7% were natives in the population and sample, respectively.

Autonomy-Connectedness and its Bivariate Association to Other Variables

Table 1 reports the strength of association as measured by eta (or R) squared between each subscale and the other variables assessed in the present study. Table 1 reveals that of 16 predictors many were associated with the subscales at a significance level of .01; 5, 10, 12 variables were associated with SO, CMNS, SA, respectively. To interpret the strength of association the following guidelines of Cohen (1988) were used: .01 represents a small effect, .06 represents a moderate effect, and .14 represents a large effect. Note, that many significant effects (8, to be precise) were less than .01 and hence small. Moreover, only the effect of gender on SO was large, and only the effect of position in the household on SO was moderate to large.

Turning to tests of hypothesis 1 on effects of gender on autonomy-connectedness, all three hypotheses H1a to H1c were corroborated. Gender had a large effect on SO (H1a); women were on average more sensitive to others than men ($M_w=3.53$, $M_m=3.08$, $SD=.50$, Cohen's $d=.90$), agreeing with the results of Bekker and van Assen (2006). On average, men scored higher on SA than women (H1b: $M_w=3.71$, $M_m=3.88$, $SD=.67$, Cohen's $d=.26$), and higher on CMNS (H1c: $M_w=2.93$, $M_m=3.15$, $SD=.81$, Cohen's $d=.27$), but both these effects of gender were small.

Table 1 Strength of association as measured by eta squared between ACS-30 subscales and household and demographic characteristics of the respondent.

Variable ^a	SO	CMNS	SA
Gender (1)	.168*	.018*	.017*
Age (1)	.006	.000	.005
Education regardless certificate (7)	.004	.036**	.016**
Education with certificate (7)	.003	.032**	.018**
SES (4)	.001	.009**	.007*
Position in household (6)	.081**	.019**	.021**
Number of household members (8)	.004	.003	.009*
Number of children in household (7)	.005	.002	.009*
Having partner (1)	.000	.000	.000
Household composition (4)	.002	.003	.002
Primary occupation (11)	.041**	.023**	.019**
Gross income (1)	.035**	.025**	.029**
Net income (1)	.039**	.023**	.032**
Gross income household (1)	.001	.007**	.008**
Net income household (1)	.002	.005**	.006**
Ethnicity (4)	.001	.001	.004

^a Degrees of freedom of the predictor are indicated between brackets. * $p<.01$, ** $p<.001$

Hypothesis 2a anticipated positive associations between socio-economic independence variables (SES, education, income) and SA and CMNS. Also H2a was corroborated, although all effects observed were only small to moderate. SES had a very small positive effect (eta squared not larger than .01) on CMNS and SA. Level of education (with or without a certificate) had small to moderate effects on CMNS and SA. The trend was that higher education was associated with higher CMNS and SA. After recoding the original variable into low education, middle education, and high education, CMNS (3.70, 3.84, 3.87) and SA (2.88, 3.11, 3.18) were both observed to increase in education. However, only the differences between low education and the other levels were significant, even at significance level .002. All tests reported in the present study corresponding to paired comparisons were carried out using Tukey tests. Finally, after removing two influential cases with a large value on Cook's distance, CMNS and SA were correlated positively with income. Net (gross) income of the respondent correlated .18 (.17) with SA, and .15 (.16) with CMNS ($p<.001$ for all correlations). These effects of income were small to moderate.

Hypothesis 2b on the relation between SO and caring for others variables (number of household members, number of children in the household, working in own household as primary occupation) was partly confirmed. No effect was found of number of members and children in the household. However, as expected, a close to moderate effect of primary occupation on SO was found. Focusing on the four major categories of primary occupation, doing paid work,

going to school, being retired, working in the own household, we found that persons working in the own household had a higher score on SO than persons from the other three groups ($p < .001$ for all three comparisons).

Finally, some other effects not anticipated in the hypotheses were found as well. Net (gross) income of the respondent correlated $-.20$ ($-.19$) with SO, corresponding to a small to moderate effect. Effects of position in household were also observed, even a moderate to large one on SO. Focusing on the three main categories of position household (head of household, partner, child) and comparing their means led to the conclusion that the head of the household was on average more self-aware, had a higher capacity to manage new situations, and a lower sensitivity to others than their partner ($p < .001$). Children on average scored less on SO than the partner ($p < .001$), but more than the head of the household ($p = .046$). Other paired comparisons on position in the household did not yield significant differences. Finally, we found that persons working in the own household had a lower score on CMNS than people from the other three categories doing paid work, going to school, and being retired ($p < .002$ for all three pairwise comparisons). Together with persons going to school the people working in the own household also had the lowest score on SA ($p < .002$ for all four pairwise comparisons).

Autonomy-Connectedness and its Association to Socio-Demography, Controlled for Gender

Our second goal was to examine if possible associations between on the one hand socio-demographic variables and on the other hand autonomy-connected could be explained, at least partly, by gender differences. These associations could only be (at least partly) explained by gender if gender would both be associated with autonomy-connectedness (H1) and to the socio-demographic and caring for others variables (see the numbers 3 in Fig. 1). We have already reported that gender was associated to the three scales of autonomy-connectedness. Hence we only need to verify if gender is associated to the socio-demographic variables for testing H3a and H3b.

Chi-square tests of statistical independence demonstrated that gender was associated with education, position in the household, primary occupation, and income, but not with SES ($\chi^2_{(2)} = 19.03$, $p < .001$ for educational level and gender, $\chi^2_{(2)} = 849.57$, $p < .001$ for position household and gender, $\chi^2_{(3)} = 361.43$, $p < .001$ for primary occupation and gender, $\chi^2_{(4)} = 7.78$, $p = .100$). Associations with gender that are most worth mentioning were that higher education was associated with being male (64.9% of the highly educated people in the sample was male, versus 49.6% of the lowly educated people), males were more often the head

of the household (5.8% of the heads of the households were women, and only 9.2% of the partners of the heads were men), and the majority of workers were male (57.8%) while of the persons working in the own household only 4.1% was male. To conclude, we corroborate H3a and H3b that gender explains at least part of the association between autonomy-connectedness and socio-demographic and caring for others variables.

The final step in our analysis was to check if the explanation by gender is complete. The explanation of the association between a socio-demographic and an autonomy-connected variable is said to be complete, if after controlling for gender, that association is no longer significant. Hence we only needed to consider those socio-demographic variables that were related to autonomy-connectedness. That is, we checked if the effect of SES, education, and income on SA and CMNS (corresponding to H2a and H3a), and the effect of primary occupation on SO (corresponding to H2b and H3b) remained significant after controlling for gender. We only considered education with certificate, and the net income of respondent, since education regardless certificate, and gross income respondent are strongly related variables. Since there was no effect of number of children in the household and number of household members on SO (H2b, H3b), this analysis needed not be carried out for these variables. Finally, we also carried out the analysis for position in the household, since this variable had a moderate to large effect on all autonomy scales.

Table 2 summarizes the results of analysis of variances and regressions after controlling for gender. The first row of Table 2 presents the variance explained of the subscales in the reference model that only includes the main effect of gender. The following five rows present the additional variance explained by the row variable and its interaction with gender, the degrees of freedom associated with these effects, and its significance.

Table 2 Strength of effect of household and demographic characteristics and their interactions with gender on ACS-30 subscales, after controlling for gender.

Variable	SO	CMNS	SA
Gender	.168**	.018**	.017**
SES (8)	.004	.011*	.006
Education with certificate (13)	.005	.037**	.019**
Net income (2)	.000	.011**	.015**
Position in household (12)	.004	.010*	.013*
Primary occupation (22)	.009	.019*	.016*

Association strength is assessed with additional explained variance. For reference, the first row includes the effect of gender on autonomy-connectedness alone.

^a Degrees of freedom of the predictor are indicated between brackets. * $p < .01$, ** $p < .001$

Interestingly, effects of SES, education, and income on CMNS and SA remained significant after controlling for gender. That is, after controlling for gender there was still a positive effect of education and income on CMNS and SA, and a positive effect of SES on CMNS. However, note that the effects of income reduced after controlling for gender from .023 (CMNS) and .032 (SA) (Table 1) to .011 and .015, respectively (Table 2). Also the effects of position in the household and primary occupation on CMNS and SA remained after controlling for gender. To conclude, gender partly and not completely explains the association between CMNS and SA and socio-demographic variables.

Finally, the effects of caring for others variables were no longer significant after controlling for gender. The effect of primary occupation could all be explained by differences between men and women in SO. Similarly, the moderate to large effect of position in household could be explained completely by gender differences in SO. That is, on average persons working in the household and the partner of the head of the household were more sensitive to others; and the lower a person's income the more sensitive to others, because these persons tend to be women, and women are more sensitive to others. There also was no effect of income on SO after controlling for gender. To conclude, relations between all socio-demographic and caring for others variables and SO could be explained by the fact that (1) men scored higher on SO than women, and (2) men and women scored differently on these demographic variables.

Norms for Autonomy Using the ACS-30

On the basis of our analyses we constructed norm scores for autonomy-connectedness. Norms of a variable should take other variables into account that are strongly associated with it. That is, if another variable is strongly associated with the variable of interest, then separate norm tables are warranted for specific values of the other variable. We have

shown that gender is strongly associated with SO and explains the associations of other variables with SO. Therefore, separate norm tables of SO for men and women were constructed. Since no variables had a moderate to large effect on SA and CMNS, only one table was constructed for each of both these subscales. Table 3 presents the stanines of each norm group, together with the means and standard deviations of the scale.

Discussion

The aim of the present study was threefold. We wanted to investigate whether women compared to men were higher on sensitivity to others, a component of autonomy-connectedness, in a large representative community sample. Secondly, we aimed to determine to what degree autonomy-connectedness could be explained by socio-demographic variables, and to what degree this association is spurious because of their associations with being male or female. Finally, we wanted to develop norm scores for all three components of autonomy-connectedness.

Our results clearly confirm the gender difference in autonomy-connectedness that we found with the ACS-30 in previous studies with non-random non-clinical as well as clinical samples (Bekker 1993; Bekker and van Assen 2006; Bekker and Belt 2006; Bekker et al. 2001; Bekker et al. 2007; Bekker et al. *under review*). A large gender difference was found in sensitivity to others, with women being more sensitive to others than men. In the current sample, we also found small gender differences with respect to both other autonomy-connectedness components (men having slightly higher levels of self-awareness and capacity for managing new situations).

Regarding our second study aim, assessing the associations of socio-demographic variables with autonomy-connectedness before and after taking the effect of gender

Table 3 Norm stanine scores of SO for men and women separately, and of SA, and CMNS.

Stanine (percentiles) ^a	SO men ($M=3.08$; $SD=.50$) ^{b, c}	SO women ($M=3.53$; $SD=.51$)	SA ($M=3.80$; $SD=.67$)	CMNS ($M=3.05$; $SD=.82$)
1 (0–4)	1.00–2.18	1.00–2.59	1.00–2.57	1.00–1.67
2 (4–11)	2.18–2.47	2.59–2.94	2.57–3.00	1.67–2.00
3 (11–23)	2.47–2.71	2.94–3.18	3.00–3.29	2.00–2.33
4 (23–40)	2.71–2.94	3.18–3.41	3.29–3.71	2.33–2.83
5 (40–60)	2.94–3.18	3.41–3.65	3.71–4.00	2.83–3.33
6 (60–77)	3.18–3.41	3.65–3.88	4.00–4.41	3.33–3.67
7 (77–89)	3.41–3.71	3.88–4.12	4.41–4.57	3.67–4.17
8 (89–96)	3.71–3.94	4.12–4.41	4.57–4.86	4.17–4.50
9 (96–100)	3.94–5.00	4.41–5.00	4.86–5.00	4.50–5.00

^a The first column indicates the stanine intervals and the corresponding percentiles.

^b Means and standard deviations of subscales are between brackets in the column's headers.

^c Scale endpoints are 1 (low SO, SA, CMNS) and 5 (high SO, SA, CMNS).

into account, our results were as follows. Being male or female appeared to be by far the strongest predictor of SO. It was also confirmed that persons working in the own household scored higher on SO than other persons, but no association was observed between SO and the number of children in the household, or number of household members. Position in the household and primary occupation turned out to be the best predictors among the household and demographic variables. Our hypotheses concerning the positive associations between SES, education, and income on the one hand, and SA and CMNS on the other hand were confirmed, although the effect sizes were small. The two main findings were that (1) persons working in the own household had lower scores on both SA and CMNS, and higher scores on SO; (2) the head of the household scored higher on both SA and CMNS, but lower on SO.

As could be expected, men and women strongly differed on the socio-demographic variables including those related to household and caring for others. The picture that emerged confirmed the well-known division of paid and unpaid work between men and women in Western countries (e.g., see Gjerdingen et al. 2000): more men than women had paid work, women did the housekeeping in the majority of cases, and men had a higher educational level.

All associations between socio-demographic variables and SO could be explained by gender, that is, after controlling for gender all associations between SO and the socio-demographic variables disappeared. In other words, the association between SO and the socio-demographic variables was completely spurious; on average persons working in the household and the partner of the head of the household were more sensitive to others; and the lower a person's income the more sensitive to others, because these persons tend to be women, and women are on average more sensitive to others.

After controlling for gender, some socio-demographic variables continued to have an effect on SA and CMNS. However, these effects were small, except the moderately positive effect of educational level on CMNS. Of course, this effect is comprehensive: the higher one's education, the more knowledge one can acquire that can be applied in a diversity of new situations.

In summary and very interestingly, gender explained all relationships between sensitivity to others and the, rather extensive, series of socio-demographic variables. Also, gender strongly predicted levels of sensitivity to others even after controlling for all these socio-demographic variables. This result supports the idea that sensitivity to others is an important personality characteristic distinguishing men from women.

Finally, we constructed norm scores for the ACS-scale. Because the effect of gender on SO was large, different

norm scores of SO were constructed for men and women. Although the sample was not representative with respect to underrepresentation of ethnic minorities, we believe the norm groups reflect well the scores of the population since ethnicity did not affect the scores on either subscale.

Our conclusions that being male or female is a good predictor of SO that can even explain all associations between SO and socio-demographic variables, of course does not rule out the possibility that other variables than those under study can (partly) explain differences in SO. Some psychological and/ or biological variables are plausibly related to SO, on which men and women differ as well. One of these psychological variables might be rumination, its gender difference being substantially mediated by responsibility for the tone of interpersonal relationships (Nolen-Hoeksema and Jackson 2001). Another one is crying proneness (Bekker and Vingerhoets 1999, 2001), that also seems related to sensitivity to others; notice here that crying can be considered a way of coping with distress that 'protects' rather than harms interpersonal relationships by triggering helping behaviour and avoiding anger expression.

More in general, the large gender difference in sensitivity to others agrees with gender differences that have repeatedly been reported in the literature, such as in connectedness (e.g., Antonucci 2001; Chodorow 1989; Kaplan and Surrey 1984), tendency for affiliation under stress (Lengua and Stormshak 2000), communion (Helgeson and Fritz 1998, 2000), inclination to ruminate in order to protect interpersonal relationships (e.g., Nolen-Hoeksema and Jackson 2001), and tend-and-be-friend response (Taylor et al. 2000). Although socio-cultural factors definitely play a major role in the origins and perpetuation of these gender differences (see the Introduction; for example, factors related to a gender-specific attachment development; e.g., see Bekker (1993) and Chodorow 1989), also biological factors might contribute, such as a higher oxytocin secretion in women, particularly during pregnancy (e.g., see Taylor et al. 2000).

We would like to raise three issues concerning the generalization of our findings. Firstly, since our sample was Dutch, one might wonder if our findings can be generalized to populations of non-Western countries and/ or to ethnic minorities within Western-European countries. We have no reason to assume that gender differences and similarities in SO, CMNS, and SA vary substantially across Western countries. However, further research with the ACS-30, across more countries, for example varying on Hofstede's I/C and M/F-dimensions (e.g., Hofstede 1980; see Introduction section) is needed in order to confirm this idea. In addition, more research with the ACS-30 in non-Western countries needs to be done. Possible differences in gender differences in autonomy-connectedness across countries will possibly also lead to an increase in understanding of autonomy and

gender differences therein. Although we tend to believe that gender differences in SO, CMNS, and SA are similar across Western countries, this does not imply that we believe that associations between socio-demographic variables and autonomy are similar across Western countries as well. For example, in Scandinavia the percentage of fulltime-employed women is larger than in other Western countries (Gjerdingen et al. 2000). Additionally, men both work relatively more in their household and take more care of their child(ren) than in other Western countries. Hence the distribution of socio-demographic variables with respect to gender is different in Scandinavia. Because men on average are expected to score higher on socio-demographic variables related to caring for others, we expect smaller associations between SO and these variables in Scandinavia. Similarly, because women on average are expected to score higher on socio-economic independence variables, we expect smaller associations between CMNS and SA and these variables in Scandinavia. However, we contend that also in Scandinavia the associations, between the socio-demographic variables and SO (CMNS and SA), albeit smaller, can be (partly) explained by gender.

Another issue concerns possible differences between offline and online completion of questionnaires, or the validity of online surveys. See Dillman (2007) for a textbook on both types of surveys and their differences. Schillewaert and Meulemeister (2005) found similar results of both types of surveys in terms of attitudes, interests and opinions, after controlling for socio-demographics variables. Faas and Schoen (2006) found systematic differences in results of open, unrestricted online surveys, and of offline surveys. However, results of online samples previously recruited in offline surveys were similar to results of offline surveys. Since the large sample in our online survey was also made to be representative of the population just as in offline surveys, we do not expect an effect of online completion of the survey.

The last issue concerning the generalizability of our findings is the reliance on self-report measures solely. For example, there are indications that gender differences in pro-social behaviour are usually smaller when assessed by direct observations than by self-report measures (Grusec et al. 2002). Hence, the large gender differences in sensitivity to others that we found in the current and in previous studies might be smaller when measured by observational methods. Additional information from observers, clinical raters and informants and/or performance- or narrative-based assessments can be helpful in future research to gain more insight into this issue. Because gender stereotypes might remain operative in such types of studies as well (rating women's behaviour as expressing more sensitivity to others than men's), one could consider using vignette studies in which being male or female is manipulated.

Finally, we would say some words about the interpretation of one of our main findings, the existence of higher levels of sensitivity to others in women than in men. We feel that the difference is meaningful for various psychological domains. For example, recognizing its existence might provoke discussion in the fields of educational psychology regarding teacher–child interactions as well as in the domain of work- and organisational psychology, e.g., with respect to female and male leadership (e.g., Eagly et al. 2003). For our domain, the field of clinical psychology, we consider differences in sensitivity to others between women and men very meaningful as they may be an important key to understanding the gender differences in prevalence of various mental disorders: at one pole of the spectrum the antisocial and other externalising behavioural problems that are observed far more often in men than in women, and on the other the anxiety-, eating -, and mood disorders with their higher prevalence in women than in men (APA 2000). As explained earlier, some of our clinical studies namely indicated that relatively high levels of sensitivity to others as measured with the ACS-30 were associated with anxiety and depression (Bekker and Belt 2006) and with eating disordered behaviour (Bekker et al. *under review*), whereas relatively low levels of sensitivity to others were related to antisocial behaviour (Bekker et al. 2007). Because (in)sensitivity to others would indeed make the difference, the norm scores constructed here might be useful in further detecting (and finally preventing) the pathways leading to both extremes.

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