# Predicting adolescent gender role attitudes

*Socio-demographic characteristics, family context, and school peer gender culture*

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**Abstract**

Research into the construction of individuals' gender role attitudes (GRA) has primarily focused on the effects of socio-demographic characteristics and primary socialisation. Despite the school environment being recognised as a critical context of socialisation for adolescents' GRA, quantitative research focusing on the dynamics of gender attitudes during adolescence remains conspicuously understudied. This study investigates the interplay between individual characteristics, the family context, and school peer gender culture on adolescents' GRA in Flanders (Belgium). A longitudinal survey was administered (Npupil = 4063; Nschool = 57) and multilevel regression analysis confirms that pupils from lower socio-economic backgrounds as well as boys express traditional GRA. It also indicates the importance of religion, rather than religious affiliation, in the construction of traditional GRA. Furthermore, primary socialisation via parental GRA remains an important predictor, although GRA socialisation also takes place within schools through the prevailing school peer gender culture.

**Keywords:** Adolescent attitudes, gender role attitudes, predictors, multilevel regression analysis

Gender role attitudes (GRA) constitute an important lens through which individuals view and organise their world. Traditional GRA play a significant role in restricting the future life decisions of boys and girls to choices that align with perceptions of appropriateness to their own gender. The

choice of gender stereotypical educational options has major implications for job opportunities and life chances (Council of Europe, 2015; Van der Vleuten, Jaspers, Maas, & Van der Lippe, 2016).

Extant research into the construction of individuals' GRA focuses on the effects of socio-demographic and parental socialisation (André, Gesthuizen, & Scheepers, 2013; Carlson & Knoester, 2011; Judge & Livingston, 2008). However, GRA are constructed in relation to multiple social agents (Witt, 2001). All these social agents (in)directly communicate gender role norms, and (re)enforce the idea that certain roles, particular educational subjects, and, by implication, jobs, are more appropriate for either men or women (Judge & Livingston, 2008).

The school environment is acknowledged as a critical socialisation context (Bronfenbrenner, 1994; Davis, 2016; Delamont, 2012; Kågesten et al., 2016; Molla, 2016). The significance of schools in shaping adolescents' GRA is moreover supported by qualitative research (e.g. Jackson, 2006; Kågesten et al., 2016; Morris, 2012; Pascoe, 2007). Despite this, few empirical quantitative studies have attempted to capture the determinants of GRA in schools (see reviews Halimi, Consuegra, Struyven, & Engels, 2018; Kågesten et al., 2016). The limited quantitative studies have focused primarily on school compositional characteristics, such as co-education versus single-education and the socio-economic neighbourhood of schools (Erarslan & Rankin, 2013), and curriculum features such as courses in gender equity (Erden, 2009) and women's studies (Bryant, 2003). To the best of our knowledge, earlier quantitative research has not considered the impact of school gender culture – or the shared gender beliefs present within the school (Connell, 2006) – on individual students' GRA.

This study investigates determinants of GRA from an ecological perspective. We consider the interplay between individual characteristics and two important microsystems: the family and the school. In doing this, we specifically focus on the role of school peer gender culture and therefore contribute to the limited quantitative research on school level predictors of GRA (Halimi, Consuegra, Struyven, & Engels, 2016; Kågesten et al., 2016). Taken together, we enable a more nuanced understanding of how adolescents' GRA are constructed. These insights could help schools to proactively work towards an environment where children feel free to make educational and professional choices free from gendered assumptions, therefore developing the talent of each student, and maximising equal opportunities.

## Theoretical framework

*An ecological view of the development of gender role attitudes*

Gender roles are continually being (re)constructed. As West and Zimmerman (1987) neatly put it, we actively 'do gender'. Ideas regarding the appropriate roles for men and women are thus conceived as dynamic and malleable functions of different life events, experiences, and interactions (Bolzendahl & Myers, 2004; Davis, 2016; Leaper & Farkas, 2015; West & Zimmerman, 1987). The ecological perspective stresses that GRA are not rooted in one single social setting, but that human development is the consequence of multiple and interacting social contexts (Bronfenbrenner, 1994).

Typically, adolescence is a transitional phase characterised by exposure to, and participation in, an increasing number of interacting social contexts (Smetana, Robinson, & Rote, 2015). Empirical research shows that parental influence decreases during adolescence while other socialising agents become increasingly important (Bolzendahl & Myers, 2004; Davis & Greenstein, 2009; Vespa, 2009). It is argued that schools are one of the key social contexts in which these experiences become apparent (Davis & Greenstein, 2009). Therefore, to understand the development of GRA, more complex analytical models that can account for the interaction of various social contexts are necessary (Wentzel, 2015).

*Predictors of gender role attitudes*

Several predictors have been linked to an individual's GRA. We provide an overview of predictors at the level of (1) the individual, and (2) the school.

An individual's sex has systematically been found to be related to their GRA, with men generally expressing more traditional views on gender roles (Carlson & Knoester, 2011; Davis & Greenstein, 2009; Judge & Livingston, 2008; Kågesten et al., 2016; Marks, Bun, & McHale, 2009). An interest-based explanation suggests men to maintain traditional GRA because they benefit from male privilege (Bolzendahl & Myers, 2004; Davis & Greenstein, 2009), especially in current society where women are taking up a bigger share in paid labour but remain mainly responsible for traditional gender roles such as parenting and household responsibilities (Scott & Clery, 2013).

Beyond sex, several other socio-demographic characteristics are commonly drawn upon. Research indicates that increased levels of religious practice (André et al., 2013; Bolzendahl & Myers, 2004; Davis, 2016; Davis & Greenstein, 2009), religious upbringing (Judge & Livingston, 2008), and fundamentalist religiosity (Kroska & Elman, 2009) are related to more

traditional GRA. Gender inequalities are legitimised based on the belief in a 'natural order' (Inglehart & Norris, 2003; Kretschmer, 2013).

Similarly, GRA can vary depending on one's migration and cultural background (Davis & Greenstein, 2009; Kane, 2000). In their systematic review, Kågesten et al. (2016) conclude that adolescents with a migration background are exposed to conflicting cultural messages about gender norms in different social contexts, such as their country of residence, family, and school. It is important to discern which of these messages has the greater impact. For example, in some migrant communities, religion is the source of important cultural messages about gender norms. Scheible and Fleischmann (2013) found that, in Belgium, second-generation Muslim migrants are either less religious, or more 'symbolic religious' than first-generation migrants, and therefore hold less traditional gender views. However, religion might offer a sense of identity and community to second-generation migrant communities when encountering hostility, discrimination, or forced assimilation in the country of residence. This can result in a stronger religious identity and, subsequently, in more traditional GRA than first-generation migrants (Connor, 2010; Diehl, Koenig, & Ruckdeschel, 2009).

Regarding family context, most studies find congruence between parents' and their child's GRA (Carlson & Knoester, 2011; Kågesten et al., 2016), although Marks et al. (2009) found evidence of some children expressing more egalitarian views than their parents.

Parental attitudes are transmitted indirectly through parental professional, familial, and household behaviour (Carlson & Knoester, 2011; Davis & Greenstein, 2009; McHale, Crouter, & Whiteman, 2003; Prokic & Donkers, 2009). Research suggests that exposure to higher educated parents and maternal employment fosters more egalitarian GRA in children (André et al., 2013; Bolzendahl & Myers, 2004; Davis & Greenstein, 2009; Judge & Livingston, 2008; Kågesten et al., 2016; Marks et al., 2009). Likewise, growing up in non-traditional family structures (e.g. single-parent households) might foster more egalitarian views among the youngsters in such families, because the family roles in these households do not conform to stereotypical gender patterns (McHale et al., 2003; Prokic & Donkers, 2009).

At the school level, Mensch, Ibrahim, Lee, and El-Gibaly (2003) stress that the views established within the school are key in influencing an individual students' GRA. Although school cultures vary, all school cultures are gendered: they actively negotiate and (re)produce gender attitudes (Delamont, 2012; Lui, 2006). Vantieghem (2016) found evidence of school based shared gender role beliefs among students in secondary education. The degree of traditionalism in school peer gender culture differs between

schools (Toomey, McGuire, & Russell, 2012; Vantieghem, 2016) and is related to variations in school composition characteristics such as socio-economic status (SES), migrant background, and gender composition. Erarslan and Rankin (2013) found that, next to family SES, attending a school located in a high-SES neighbourhood, contributes to the development of egalitarian GRA. The research of Vantieghem (2016) indicates that schools with a lower proportion of female students have higher levels of traditional GRA.

## Materials and Methods

In this study, a longitudinal survey was administered to pupils and their parents and the obtained data were analysed using multilevel regression modelling techniques. In the subsequent sections, we will discuss the sampling, data collection, and attrition, variables, and analyses.

*Sample*

This study draws on data collected from the Procrustes Project (2012–2015). This project was concerned with gender-differentiated performance of students in Flanders and Brussels (Belgium) during their first two years of secondary education. Pupils generally start secondary education at the age of twelve, and the first two years are comprehensive. Beginning in the third year, important study choices are made related to four different educational tracks: general, artistic, technical and vocational (Eurydice, 2018). A substantial body of evidence suggests that these choices are highly gendered and place students on distinct educational tracks (e.g. Van der Vleuten et al., 2016).

All schools offering first grade secondary education were listed, including their geographical spread, location (urban/rural), and educational network (publicly organised and privately organised, both subsidised). The researchers sought to involve six urban and six rural school establishments in each Flemish province (ratio public/private 2:4). One public, and two private schools were anticipated in the urban Brussels capital region (see figure 1). Based on these criteria, three random samples were drawn. When school campuses in the first sample declined to participate in the research, a campus from the second sample was contacted. Student survey data was collected during class hours and in three separate phases (see 'data collection'). Pupils' parents received a survey (1 parent/pupil) via the school, which they were asked to return in a sealed envelope.

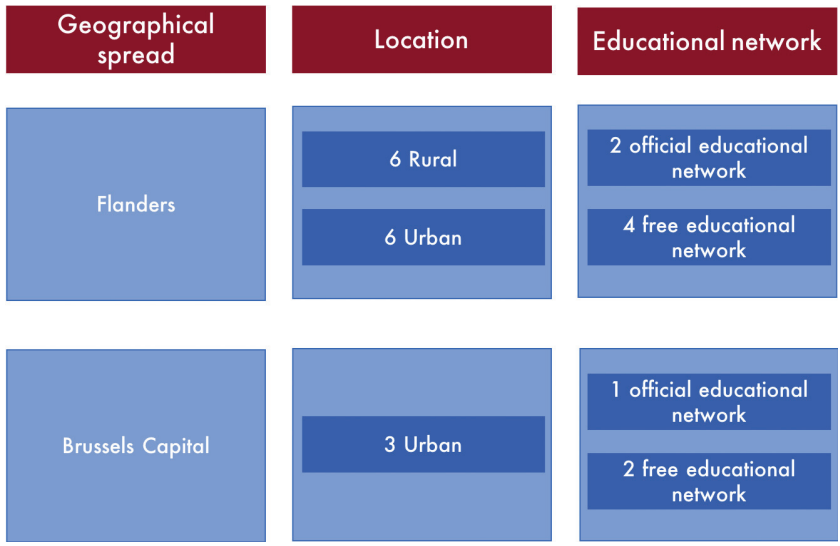


*Figure 1 Disproportional stratified sample.*

*Data collection and attrition*

In total, 124 schools were contacted, of which 59 agreed to participate (47.6%). A total of 6600 unique identification numbers were assigned to individual pupils from lists provided by the schools at the beginning of the school year. In total, pupil data was collected in three phases: (1) the beginning of the first year of secondary education, (2) the end of the first year of secondary education, and (3) the end of the second year of secondary education. In the first phase, 6380 pupils (Nschool= 59) completed the questionnaire. In the second and third phases, 6234 pupils (Nschool= 58) and 6163 (Nschool= 57) participated, respectively. Missing data over time was due to reasons of attrition (pupils changing school, pupil absences during the survey administration, and two schools that withdrew during the final phase). In total, 4987 pupils in 57 schools completed all three surveys (the response rate over three phases was 78.2%). In the first phase, 5464 parents completed the survey, of which 5094 responses could be successfully linked to the pupil information. Combining this data resulted in our final sample of 4063 pupils with data available on both parents (Phase 1) and pupils (Phases 1, 2, and 3). Descriptive statistics for this final sample can be found in Table 1.

The analysis indicates that missing data is related to pupil background characteristics. There are more missing data from both parent and pupil questionnaires for boys, first-and second-generation migrants, and low-SES pupils. Missing data on the outcome variable GRA in the final sample was limited to nineteen respondents (Phase 3) and was not additionally related

to pupils' background characteristics. Since the missing data for both parents and pupils was linked to pupil background characteristics, we assume it is not entirely random. Therefore, we should be cautious in extrapolating the results of this study to the entire study population.

**Table 1. Descriptive statistics of sample (N≤ 4063).**

| Variables | *M* | % | *N* |
|---|---|---|---|
| Sex | | | |
| Male | | 52.00 | 2112 |
| Female | | 48.00 | 1951 |
| Socio-economic status | | | |
| Low | | 16.2 | 653 |
| Mid | | 58.3 | 2349 |
| High | | 25.5 | 1027 |
| Religion | | | |
| Protestant | | 0.9 | 38 |
| Catholic | | 55.2 | 2221 |
| Muslim | | 7.3 | 293 |
| Other | | 1.9 | 76 |
| Non-religious | | 34.7 | 1396 |
| Migration Background | | | |
| Native | | 80.7 | 3234 |
| First generation | | 4.5 | 182 |
| Second generation | | 14.7 | 589 |
| | ***M*** | ***SD*** | ***N*** |
| GRA1 | 1.28 | 0.62 | 4038 |
| GRA3 | 1.33 | 0.69 | 4044 |

*Dependent variable*

The study investigated the interplay between individual characteristics and the family and school peer gender culture on adolescent gender role attitudes (GRA). Therefore, we used the third measurement of GRA as the dependent variable, after students had been exposed to the school's influence for two years. An adapted version of the 15-item traditional ideology scale of Vermeersch, T'Sjoen, Kaufman, Vincke, and Van Houtte (2010) was used to measure the extent to which participants agree with traditional GRA (5-point Likert scale, completely disagree to completely agree). The following roles are questioned using this scale: nurturing, domestic, autonomy, status, toughness, anti-femininity, and attractiveness. Higher scores (4) indicated more traditional attitudes. After conducting Principal Component Analysis (PCA) and Cronbach's alpha analysis, an 11-item scale was

constructed for all pupils who completed at least nine items (Cronbach's' alpha = .857). See Halimi et al. (2018) for a detailed description of the scale items and psychometric properties.

*Independent variables*

Independent variables were included on two levels: the individual level and the school level.

Regarding the individual level, we measured sex, religion, cultural background, and socio-economic background. We measured sex dichotomously, by asking pupils if they were a girl or a boy (reference category). Religion was operationalised by two different variables: (1) 'religious affiliation' (Protestant, Catholic, Muslim, other religion, not religious (reference category)), and (2) 'importance of religion' (5-point scale, not at all important (0) to very important (4)). Cultural background was operationalised by employing information on the country of birth of both parents. The following categories were used for each individual parent: (1) Northern and Western Europe (e.g. Belgium, Germany) (reference category), (2) Southern Europe (e.g. Italy, Spain), (3) Eastern Europe (e.g. Hungary, Poland), (4) Middle East and Northern Africa (e.g. Algeria, Morocco), and (5) Other (Vanduynslager, Wets, Noppe, & Doyen, 2013). Parents' countries of birth were included as separate variables in the model.

To determine the pupils' socio-economic background, the (last) occupation of parents was asked to both pupil and parent. These answers were converted by a postdoctoral researcher into eight occupational prestige categories as suggested by Erikson, Goldthorpe, and Portocarero (1979): (1) unskilled manual workers, (2) specialised manual workers, (3) skilled manual workers, (4) routine non-manual employees, (5) self-employed and small proprietors, (6) lower-grade employees and public officials, (7) higher-grade public officials and executives, and (8) professionals, entrepreneurs, and large proprietors. The parent with the highest SES was selected as the indicator of pupil SES and categorised into low SES (category 1 to 3), mid SES (category 4 to 6) and high SES (category 7 to 8). Parental GRA was measured the same as for pupils. Principal Component and Cronbach's alpha analysis indicated no necessary scale adaptations (Cronbach's alpha: .863). As only one parent per child was asked to complete the survey, we must bear in mind that it were mostly mothers who completed the surveys (80%). Therefore, the GRA of parents represents the women's GRA, which, evidence suggests, is more egalitarian (Davis & Greenstein, 2009).

Parental education mapped the highest obtained degree for the pupils' parents: (1) no educational degree, (2) primary education, (3) lower secondary education, (4) higher secondary education (reference category), (5) higher education: non-academic and (6) higher education: academic. Both parents' educational levels were added separately to the model. Parental employment represents the occupational situation of both the parents: (1) full-time employed, (2) part-time employed (reference category), (3) homemaker, and (4) other (either unemployed, retired, incapacitated for work (disabled/long-term sick leave, full career break, or time credit, full-time attendance of education, deceased). Family structure reflects pupils living in a (1) nuclear family (reference category), (2) single-parent family or alternating custody, (3) reconstituted family, and (4) other.

Regarding the school level, we aggregated gender role attitudes by calculating the mean of pupils' GRA in the school at the first measurement (GRA1). This was done after computing the intra-class correlation, which determines the variance in GRA for pupils at the school level. The intra-class correlation for GRA1 (.93) indicates a strong level of similarity of GRA within schools, which allowed the above-mentioned aggregation. School peer gender culture hence reflects the peer gender role attitudes present in the school during the first year of secondary education. The aggregated standard deviation of pupils' GRA within schools was calculated to account for the dispersion of views within a school.

Other school characteristics were included as control variables. SES and sex composition of both pupils and teachers were obtained by calculating the percentage of pupils from a low-SES background, male pupils, and male teachers respectively, in each school. Since educational tracks are linked to both the SES and migration composition of the school, the school type was included (see Van Houtte & Van Maele, 2012 for a detailed discussion of the relation). Schools were categorised by the superstructure they offered in the third year of secondary education: (1) academic (ASO) (reference category), (2) technical (TSO), vocational (BSO) and/or artistic (KSO) tracks, (3) multilateral (ASO combined with TSO, BSO or KSO), and (4) schools without 2nd or 3rd grade. Schools in the most important agglomerations, or those with a strong morphological and functional urbanisation, were coded as 'urban'. Other schools were coded as 'rural' (urbanisation data by Mérenne-Schoumaker, Van der Haegen, & Van Hecke, 1991). Data from the Flemish Ministry of Education and Training (2012) were consulted to determine the educational network (publicly versus privately organised).

### Analysis

The data is nested as a consequence of sampling first the schools (n = 57) and then pupils within these schools (n = 4063) (Hox, 2010). This implies that pupil data is not independent of each other. To account for this nested data, multilevel regression analysis in MLwiN was performed (Rabash, Steele, Browne, & Goldstein, 2017) to predict adolescents' GRA. We applied listwise deletion to deal with the missing data. Analyses show that adolescents' GRA is shared within schools (ICC = .12). Additionally, the model fit indicates that the multilevel regression model (Model 1) is preferred over the single-level model (0-Model) (LR = 267). We therefore continued with multilevel modelling techniques.

First, an intercept only model was regressed to estimate individual adolescent GRA (0-Model), and, secondly, a variance-components model was run in which both individual level (Level 1) and school level (Level 2) were considered (Model 1). This model identifies variance on both pupil and school levels. In the subsequent analysis, a random intercept model was built stepwise. First, we introduced individual level variables, resulting in a final model that included all first level predictors (Model 2). Then we built a model stepwise based on school level variables (Model 3). Finally, we ran a random intercept model with both individual level and school level variables. Variables on the two levels that significantly contributed to the first models were included (Model 4). All continuous variables were grand mean centred to facilitate interpretability of the intercept (Hox, 2010). Thus, the model intercept represents the overall mean of the response (Rabash et al., 2017).

To compare the different multilevel regression models, -2loglikelihood (-2LL) was checked and the likelihood ratio statistic (LR) was calculated. A changing deviance, or a reduction in the likelihood ratio statistic indicates a better model fit using a critical value of 3.84 minimum reduction in deviance ($p < .005$) (Rabash et al., 2017; Minium & King cited in Raykov & Marcoulides, 2011).

## Results

*Individual level*

The final model (Model 5) provides an overview of all significant variables predicting pupils' GRA. Our results are discussed with reference to this final model, unless we explicitly refer to previous models as a means to guide the reader.

**Table 2. Results of sequential multilevel analysis predicting pupils' traditional gender role attitudes.**

| Variables MODEL | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. | *S.E.* | Est. | *S.E.* | Est. | *S.E.* | Est. | *S.E.* | Est. | *S.E.* | Est. | *S.E.* |
| Intercept | 1.326 | .011 | 1.384 | .035 | 1.618 | 0.065 | 1.349 | 0.031 | 1.656 | 0.036 | 1.653 | 0.036 |
| **Individual-level variables** | | | | | | | | | | | | |
| Sex (male) | | | | | -0.586*** | 0.02 | | | -0.584*** | 0.02 | -0.585*** | 0.02 |
| Socio-economic status (low SES) | | | | | | | | | | | | |
| Mid | | | | | -0.076* | 0.032 | | | -0.091** | 0.031 | -0.088*** | 0.03 |
| High | | | | | -0.088* | 0.04 | | | -0.102** | 0.038 | -0.099*** | 0.038 |
| Religious affiliation (non-religious) | | | | | | | | | | | | |
| Protestant | | | | | -0.008 | 0.112 | | | | | | |
| Catholic | | | | | -0.018 | 0.024 | | | | | | |
| Muslim | | | | | 0.136 | 0.083 | | | | | | |
| Other | | | | | 0.041 | 0.08 | | | | | | |
| Importance of religion (in between important and not important) | | | | | | | | | | | | |
| Not important at all | | | | | 0.101* | 0.048 | | | 0.091 | 0.048 | 0.091 | 0.048 |
| Not important | | | | | 0.06 | 0.032 | | | 0.056 | 0.031 | 0.056 | 0.031 |
| Important | | | | | 0.064 | 0.037 | | | 0.071 | 0.036 | 0.07 | 0.036 |
| Very important | | | | | 0.176** | 0.066 | | | 0.319*** | 0.045 | 0.317*** | 0.045 |
| Cultural background (West and North EU) | | | | | | | | | | | | |
| *Mother* South EU | | | | | 0.066 | 0.153 | | | | | | |
| East EU | | | | | 0.161 | 0.115 | | | | | | |
| Middle East and North Africa | | | | | 0.115 | 0.076 | | | | | | |
| Other | | | | | -0.045 | 0.063 | | | | | | |

| Variables | MODEL | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Est. | S.E. | Est. | S.E. | Est. | S.E. | Est. | S.E. | Est. | S.E. | Est. | S.E. |
| *Father* South EU | | | | | | -0.026 | 0.135 | | | | | | |
| East EU | | | | | | -0.022 | 0.124 | | | | | | |
| Middle East and North Africa | | | | | | 0.009 | 0.079 | | | | | | |
| Other | | | | | | 0.074 | 0.068 | | | | | | |
| Parental educational (Higher SE) | | | | | | | | | | | | | |
| *Mother* No educational degree | | | | | | -0.065 | 0.11 | | | | | | |
| Primary education | | | | | | 0.044 | 0.077 | | | | | | |
| Lower SE | | | | | | -0.017 | 0.044 | | | | | | |
| HE: non-academic | | | | | | 0.000 | 0.025 | | | | | | |
| HE: academic | | | | | | -0.028 | 0.036 | | | | | | |
| *Father* No educational degree | | | | | | -0.036 | 0.119 | | | -0.05 | 0.106 | -0.054 | 0.106 |
| Primary education | | | | | | -0.02 | 0.069 | | | -0.022 | 0.062 | -0.024 | 0.062 |
| Lower SE | | | | | | 0.021 | 0.037 | | | 0.011 | 0.036 | 0.011 | 0.036 |
| HE: non-academic | | | | | | -0.011 | 0.026 | | | -0.016 | 0.025 | -0.015 | 0.025 |
| HE: academic | | | | | | -0.067* | 0.033 | | | -0.069* | 0.03 | -0.068* | 0.03 |
| Parental employment (part-time employed) | | | | | | | | | | | | | |
| *Mother* Full-time employed | | | | | | -0.002 | 0.021 | | | | | | |
| Homemaker | | | | | | 0.011 | 0.039 | | | | | | |
| Other | | | | | | 0.025 | 0.042 | | | | | | |
| *Father* Full-time employed | | | | | | 0.047 | 0.053 | | | | | | |
| Homemaker | | | | | | -0.033 | 0.208 | | | | | | |
| Other | | | | | | 0.009 | 0.066 | | | | | | |

| **Variables** **MODEL** | **0** | | **1** | | **2** | | **3** | | **4** | | **5** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Est.** | ***S.E.*** | **Est.** | ***S.E.*** | **Est.** | ***S.E.*** | **Est.** | ***S.E.*** | **Est.** | ***S.E.*** | **Est.** | ***S.E.*** |
| Family structure (nuclear) | | | | | | | | | | | | |
| Single parent | | | | | 0.002 | 0.028 | | | | | | |
| or alternating custody | | | | | | | | | | | | |
| Reconstituted family | | | | | -0.086 | 0.049 | | | | | | |
| Other | | | | | 0.158 | 0.136 | | | | | | |
| GRA parent° | | | | | 0.212*** | 0.019 | | | 0.216*** | 0.018 | 0.216*** | 0.018 |
| **School-level variables** | | | | | | | | | | | | |
| Sex composition (% boys)° | | | | | | | 0.004*** | 0.001 | -0.002* | 0.001 | -0.002* | 0.001 |
| SES composition (% low SES)° | | | | | | | 0.002* | 0.001 | -0.001 | 0.001 | | |
| GRA1 school mean° | | | | | | | 0.709*** | 0.139 | 0.489*** | 0.135 | 0.433*** | 0.105 |
| School type (ASO) | | | | | | | | | | | | |
| TSO/BSO/KSO | | | | | | | -0.083 | 0.06 | | | | |
| Multilateral | | | | | | | -0.055 | 0.043 | | | | |
| No higher SE | | | | | | | 0.023 | 0.047 | | | | |
| **Variance components** **MODEL** | **0** | | **1** | | **2** | | **3** | | **4** | | **5** | |
| School $u_{0J}$ | | | 0.058 | -0.013 | 0.01 | 0.003 | 0.005 | 0.002 | 0.005 | 0.002 | 0.005 | 0.002 |
| Pupil $e_{0ij}$ | 0.474 | -0.011 | 0.431 | 0.0 | 0.318 | 0.008 | 0.431 | 0.01 | 0.324 | 0.008 | 0.324 | 0.008 |
| -2*loglikelihood | 8453.243 | | 8186.616 | | 6129.343 | | 8097.642 | | 6444.238 | | 6444.655 | |
| Units Pupil | 4044 | | 4044 | | 3591 | | 4044 | | 3743 | | 3743 | |

*Notes.* Reference category between brackets. School units: 57; *p<.05, **p<.01, ***p<.001; °Grand-mean centred; abbreviations: SE = secondary education, HE = higher education, School types: ASO = general education; TSO = technical education, KSO = artistic education; BSO = vocational education.

Girls score 0.59 lower on the traditional GRA scale than boys, which indicates girls generally espouse more egalitarian GRA than boys. Compared to pupils from low socio-economic backgrounds, pupils with both a mid and higher socio-economic background score lower on traditional gender role beliefs (respectively γ= -.088 and γ= -.099). Pupils who indicate that religion is very important (γ= .32) express significantly more traditional GRA compared to pupils who find religion 'in between' important and not important. Religious affiliation, however, did not make the final model. As soon as the importance of religion was added to the model, the initial influence of all religious affiliations decreased substantially, and only the influence of affiliation to Islam remained significant. Even so, the influences of Islam were also filtered out when controlled for parental GRA. These results seem to show that it is not the religious affiliation as such that influences one's GRA, but rather the importance that pupils attach to religion and the parental GRA, which in turn might be informed by levels of parental religiosity. When maternal education was introduced in the stepwise model, the results indicated that pupils whose mothers have a higher education academic degree demonstrate less traditional views in comparison to pupils with mothers who possess a higher secondary education degree. However, in the model including all the abovementioned individual level predictors (Model 2), this was not secure: maternal education lost significance after including parental GRA. Fathers' education, however, was a predictor of young adolescents' views: pupils with fathers who possess an academic higher educational degree are less traditional (γ= -.068) compared to pupils whose fathers possess a higher secondary education degree (reference category). The underlying reason why the educational degree of mothers does not seem to contribute to our model while the fathers' education does might be related to the fact that only one parent per pupil was asked to complete the survey, which were mostly mothers. Therefore, parental GRA mainly reflects the mothers' GRA. Since higher educational degrees are linked to holding more egalitarian views, the influence of mothers' education might be indirect by its influence on mothers' GRA, which in turn affects their children's GRA. Indeed, parental GRA are remarkably reflected in their offspring's GRA; put simply, adolescents with traditional parents have more traditional views themselves (γ= .216).

*School level*

Looking at the school level, we see that adolescents attending schools with a lower percentage of boys expressed slightly less traditional views

(γ= -.002). Equally, the school peer gender culture was a significant determinant of adolescents' individual GRA: pupils attending schools with a more traditional peer gender culture demonstrated more traditional GRA attitudes (γ= 0.433) compared to pupils attending schools with a more egalitarian peer gender culture.

## Discussion

This research focused on the predictors of gender role attitudes (GRA) of adolescents in the first two years of secondary education in Flanders (Belgium).

*Sex and socio-economic status*
Consistent with earlier research (Carlson & Knoester, 2011; Davis & Greenstein, 2009; Kågesten et al., 2016), we found that girls express more egalitarian views on gender roles than boys, and that pupils from low-SES backgrounds express more traditional GRA than those from higher SES backgrounds.

*Importance of religion on gender role attitudes*
While earlier research found that religious respondents expressed more traditional views compared to non-religious respondents (André et al., 2013; Davis, 2016; Davis & Greenstein, 2009), we found that it is the importance of religion, rather than religion *per se*, that appears to be the main predictor for GRA: adolescents who attach a lot of importance to religion express traditional gender views across all religious affiliations. Although acculturation literature suggests a decline in religiosity when residing in secular countries, Röder's (2014) research in 27 European countries suggests that second-generation Muslims show similar levels of religiosity as first-generation Muslims. Additionally, religiosity was found to affect both generations' GRA similarly, that is to say: religiosity is associated with traditional GRA in both generations (Röder, 2014). This religious commitment and stress on religious identity in subsequent generations, might be elicited by the hostility, discrimination, and forced assimilation (Connor, 2010) many communities have encountered, and this might explain the reduction in the influence of Muslim religiosity as such, when adding the perceived importance of religion to the model. In line with Van Droogenbroeck, Spruyt, Siongers, and Keppens (2017), we urge future researchers to focus on how societies and schools can promote egalitarian views without abolishing

religious identity, or stigmatising religious beliefs, since this seems to be counterproductive.

*Primary socialisation: Parents and their offspring's gender role attitudes*
We can confirm international findings that there is a demonstrable congruence between the GRA of parents and their children for adolescents in Flanders (Belgium) (e.g. Carlson & Knoester, 2011). Our results indicate that socio-economic status, operationalised by the occupational prestige of the parents, rather than the employment status is related to children's GRA. Today, adolescents mostly grow up in dual-earner families (Gerson, 2010) and adolescent attitudes in such contexts might be more informed by work positions, and horizontal and vertical occupational segregation, rather than the working status (England, 2010).

The cultural background of the parents, maternal education, and family structure all lose significance when controlled for parental GRA. This might indicate that the effect of maternal education on children's GRA is mediated by parental GRA, which is in keeping with previous findings (for example Carlson & Knoester, 2011), and also confirms migration literature indicating second-generation migrants being less directly influenced by their cultural background than first-generation migrants in the construction of GRA (Röder, 2014).

*School peer gender culture*
The results of this study show that there are not only variations in traditional gender views at the individual level, but also at the school level. This indicates that a shared school peer gender culture is present within schools, and confirms earlier, mostly qualitative, research by Jackson (2006), Lui (2006), Pascoe (2007), and Toomey et al. (2012). Our results suggest an interplay between individual GRA and school peer gender culture. Adolescents who enter schools with a traditional peer gender culture express more traditional views themselves, even when individual level variables are controlled for. The prevailing school peer gender culture can thus actively (re) construct gender (Delamont, 2012; Lui, 2006). A longitudinal approach covering a longer time span (e.g. throughout secondary education) is more likely to be able to consider the interplay between peer gender culture and adolescent GRA in greater detail. Next to school peer gender culture, only pupil sex composition appears to contribute as a school level variable to the model explaining pupils' GRA: a higher percentage of girls goes hand in hand with more egalitarian views in pupils.

## Limitations and future research

This study has some limitations. First, school peer gender culture was the main variable included in the analysis and was shown to be a significant predictor for adolescent GRA. As Reynolds and Bamford (2016) have argued, more research is needed to enhance understandings of both the conceptualisation and measurement of school culture, and more specifically – as the concept has been defined and operationalised in various ways – school gender culture. Elements such as heteronormative views present in the school (Toomey et al., 2012), gender conformity pressures (Vantieghem, 2016) and hypermasculinity (Reynolds & Bamford, 2016) could be included in a broader conceptualisation of school gender culture.

Secondly, the formal and hidden gender curricula were not included in this study but are an important part of a school's gender regime. We would advise future research to study both gender curriculum characteristics and school gender culture to have a more comprehensive view on school variables affecting pupils' GRA.

Thirdly, our ecological model was built as a general model to predict adolescents' GRA. We know that some predictors might affect GRA differently for various groups of adolescents (Vespa, 2009). For example, Scheible and Fleischmann (2013) suggest that there is a difference between men and women in the relationship between gender views and Islam. Based on the literature review (Halimi et al., 2016) and our present findings, we suggest considering the further study of the intersections of sex, socio-economic status, and the importance of religion in the shaping of gender narratives.

## Educational implications

Schools are gendered institutions with gender cultures inherent to, and structurally embedded in, ways that shape adolescent GRA. It is therefore important for schools to take a more active approach to gender. We invite schools to critically screen and – when needed – challenge school gender cultures. Promising ways to do this might be by introducing formal and extra-curricular courses (Toomey et al., 2012) on topics such as gender equity (Erden, 2009), women's studies (Bryant, 2003) and sex and relationship education (Kågesten et al., 2016). This way, schools can contribute to a more gender inclusive learning environment (see Halimi et al., 2018; Gender Spectrum, 2015, n.d., for other practical tools on how to go about this).

## Conclusion

This study makes a tangible contribution to scholarship concerned with the determinants of adolescents' GRA. As Wentzel (2015) points out, more complex conceptual models are necessary to understand the way GRA are constructed, especially in adolescence, where exposure to different social contexts are central (Smetana et al., 2015). In applying an ecological perspective, we have grasped elements of this complexity by accounting for adolescents' socio-demographic background, family, and school. This ecological approach was valuable and confirmed the interplay between a persons' characteristics and the social contexts they interact with. Different socio-demographic and family context characteristics are important in explaining adolescents' GRA, but we also found convincing evidence that school peer gender culture, and student sex composition, influence adolescents' GRA. Students express more traditional views in schools with a higher percentage of boys, and in schools characterised by a more traditional school peer gender culture. Earlier research also demonstrates that schools characterised by a more traditional gender culture have less tolerance towards gender nonconformity (Vantieghem, 2016; Toomey et al., 2012) and that traditional attitudes result in more gender stereotypic subject choices (Council of Europe, 2015; Van der Vleuten et al., 2015). Therefore, in schools with more traditional gender cultures, pupils' choice of study field might be more heavily influenced by the school's gender norms. Further research on how to combat a traditional school gender culture is essential, if the goal of creating safe school environments that support interest-based future life decisions is to be realised.

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