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# Social support networks and loneliness of Polish migrants in the Netherlands

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## ABSTRACT

While the concept of transnationalism has gained widespread popularity among scholars as a way to describe immigrants' long-term maintenance of cross-border ties, few studies have empirically addressed how social networks that connect migrants to each other and to nonmigrants in communities of origin are also associated with migrants' well-being. We examined the extent to which social support networks of Polish migrants in the Netherlands serve as precursors of loneliness. Using information on confidant networks (*The Families of Poles in the Netherlands*,  $N = 1131$ ) and latent class analysis, five networks types are identified based on the received emotional support provided by kin and non-kin residing in the Netherlands and abroad. Migrants with small, homogeneous and kin-based (restricted) networks are more likely to be lonely compared to migrants with other four network types. Addressing the relationship between transnational activities and migrants' social networks, results suggest the host language proficiency is the most important predictor of large, heterogeneous, non-kin based networks in migrants. This study finds support that some transnational activities taking place in the host country are related to social networks in ways that promote integration, contrary to the notion that transnationalism is unrelated to the process of immigrant adaptation and assimilation.

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## Introduction

Research within migration studies with its long-standing concern with integration, identity and assimilation, often tended to place greater emphasis on 'rupture, uprooting and loss of homeland', with 'an 'either/or' approach to home and host allegiances' (Baldassar, Baldock, and Wilding 2007, 11). Transnational theories, on the other hand, emphasise the multiplicity of migrants' belongings (Basch, Glick-Schiller, and Blanc 1994; Guarnizo, Portes, and Haller 2003; Levitt, DeWind, and Vertovec 2003; Morawska 2009). In the transnational framework migrants are perceived as actively constructing multi-stranded

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social relations that bring the two societies – of origin and settlement – together (Basch, Glick-Schiller, and Blanc 1994, 7). Migrants stay in touch with their relatives and friends in their original homelands (Baldassar 2007; Vertovec 2004), and this holds true for post-accession Polish migrants across Western Europe (Karpinska and Dykstra 2018; Ryan et al. 2008; White and Ryan 2008). Maintaining connections to family and friends in Poland nowadays is easier than ever, as modern transportation and communication technologies have allowed transnational activities and movements to reach a scope and intensity that were impossible in former times (Garapich 2008a, 2008b).

Nonetheless, common everyday trade-offs in sharing the time and emotional engagement between life and work in the new place of settlement and a mostly ‘virtual’ social life in the home country mean that integration and transnationalism do not always coincide. Being mobile and organising a multi-local life is expensive, time-consuming and requires a lot of autonomy (e.g. in the organisation of spatial and temporal aspects of leisure activities). Despite the availability and affordability of new media that emerged as an important catalyst for the transformation of migratory experiences, Polish migrants report to feel lonely in the destination country (for Ireland see Nolka and Nowosielski 2009, for the Netherlands see Van den Broek and Grundy 2017; Toruńczyk-Ruiz 2008; for England see Victor, Burholt, and Martin 2012). Migration out of one’s country of origin presents a particularly salient factor for loneliness because resettlement requires migrants to establish new relationships with friends (and at times also with a partner) in the host country.

The post-accession flow of Polish migration (Poland joined the European Union in 2004) has been studied in detail, and a growing body of literature demonstrated interest in the transnational ties of Polish migrants (Karpinska and Dykstra 2018; Ryan et al. 2008). Yet, research on well-being, and particularly on loneliness among Polish migrants remains very scarce (for loneliness on East European migrants see Koelet and de Valk 2016). In this study we integrate insights from the integration and transnationalism paradigms in migration research together with a social network perspective to explore (1) how transnational activities shape the social support networks of Polish migrants in the Netherlands, and (2) how social support networks in turn are associated with loneliness. Our analytical approach comprises latent class analysis and logistic regression models using unique data from the *Families of Poles in the Netherlands* on 1131 migrants.

## Theoretical background

### *Loneliness versus homesickness and belonging*

Loneliness exists to the extent that ‘a person’s network of social relationships is smaller or less satisfying than the person desires’ (Peplau and Perlman 1979). One can feel emotionally alone in the presence of a broad social network, as much as one can feel socially isolated in the presence of close emotional attachment (Dykstra and Fokkema 2007). The ongoing experience of heightened loneliness can turn into a chronic stressor with a far-reaching impact. Loneliness has been associated with a wide range of negative outcomes, including low levels of physical activity (Hawkey, Thisted, and Cacioppo 2009), poor physical and mental health (Thurston and Kubzansky 2009), elevated risk of mortality (Holt-Lunstad et al. 2015), and lower cognitive health (see Ellwardt et al. 2013).

Previous studies have shown that loneliness in migrants is largely attributable to deficits in the support network (Koelet and de Valk 2016), lack of time and poor language skills in the host country (King et al. 2014) or poor health, wealth and social status for older migrants (Fokkema and Naderi 2013; De Jong Gierveld, van der Pas, and Keating 2015). Focusing on everyday relational practices, ethnographic studies have stressed the importance of engaging with both kin and non-kin in order to create a sense of belonging and community (Bell 2016; Brown 2011; Garapich 2008b). Toruńczyk-Ruiz (2008) noticed that despite verbal assertions of being happy, Polish migrants in the Netherlands give the impression of being very lonely and missing their families in Poland. Exploring stories of integration and attachment, Nijhoff (2017) remarked that despite being well integrated, Polish migrants reported lack of contact with non-migrant Dutch persons even when they stated having friendships with non-migrants to be much desired. In addition to this, recent empirical studies on loneliness established that Polish migrants are lonelier compared to Dutch counterparts (Van den Broek and Grundy 2017), contributing to the literature on differences in loneliness between migrant and non-migrant populations (Fokkema and Naderi 2013).

### *Support networks of Polish migrants in the Netherlands*

According to the Central Bureau of Statistics Netherlands, the number of Poles registered with the municipality quadrupled from less than 40,000 in 2004 to more than 173,100 in 2018 (Statistics Netherlands 2018). Due to differential adaptation and assimilation processes, social support networks can be expected to be highly heterogeneous among migrants (Koelet, Van Mol, and De Valk 2017; Ryan et al. 2008). Networks of post-accession Polish migrants in the Netherlands have been studied widely in the context of being conduits of the migration decision and facilitators for the labour market integration in the host country (Nijhoff 2017). Distinguishing between informal networks (family and friends) and formal networks (ties established through labour market institutions), Karczemski and Boer (2010) and Toruńczyk-Ruiz (2008) corroborated the existence of ‘discursive hostility towards co-ethnics’ identified in prior studies of Poles in the UK (Eade, Drinkwater, and Garapich 2006, 16; Grzymała-Kazłowska 2005). Low levels of social trust among Polish migrants has been expressed as keeping a distance from all Polish migrants outside one’s immediate circle of friends and family ties established prior to the move to the Netherlands.

Emphasising traditional markers of integration such as migrant’s labour market participation, Dutch language proficiency, housing and the presence of social ties in the Netherlands, Engbersen et al. (2013) classified Polish migrants into four ideal-types: circular and seasonal migrants (seasonal workers who may return several times to the host country); transnational migrants (rooted both in the country of origin as in the Netherlands), settlement migrants (intending to stay for a longer period of time), and footloose migrants (with weak ties to both Dutch society and Poland). Next to several other studies of post-accession migrants (Dagevos 2011; Gijssberts et al. 2018), Engbersen’s typology has been rooted in the integration paradigm emphasising attachment to the host country as paramount.

Focusing on kin aspects of support networks, Karpinska and Dykstra (2018) studied the intergenerational ties between Poles in the Netherlands and their parents in Poland. By combining information on emotional, financial and practical support, frequency of

contact, and commitment to norms of filial obligation, they distinguished three types of transnational adult child–parent relationships: harmonious, detached and obligatory (high face-to-face contact at least a few times a year and contact via communication technologies at least weekly). As Karpinska and Dykstra’s study (2018) noted, fewer than expected migrants were having harmonious ties to their parents in the home country, whereas the most frequent ties were obligatory. Their study complements the transnational literature that emphasised the multiplicity of migrants’ belongings (Guarnizo, Portes, and Haller 2003; Levitt, DeWind, and Vertovec 2003; Morawska 2009).

### *Transnational activities and social support networks*

A particularity about migrants is that they manage at least two kinds of support networks, which exist separately: a local network in their host country and an old transnational network. The support networks of migrants are hence no longer localised, as they become embedded in a transnational network linking multiple localities. Constructing a new local network may go at the cost of keeping the transnational network intact, as it has been found that the transnational network shrinks over time, with a greater focus on supportive relationships with a few close friends and family members (Koelet, Van Mol, and De Valk 2017). Migrants tend to keep in touch with a limited number of friends in the origin context and such friendships tend to fade away with lapsing time after migration (Morosanu 2013). After migration, friends frequently ‘move on’ and often invest less time than before to sustain the relationship (Janta, Cohen, and Williams 2015; Mueller 2015).

Migrants remain in frequent contact with close family ties (Koelet and de Valk 2016; Morosanu 2013). Due to geographical constraints the social support from transnational ties is more of emotional than of instrumental nature (not considering borrowing money). Family members in the home country that remain in frequent contact with migrants are a source of emotional support to migrants’ day-to-day lives (Toruńczyk-Ruiz 2008). In contrast, relationships to locals in the host country are based on voluntary ties, and are often chosen for sociability, consolation and casual assistance (Fischer 1982; Litwak and Szelenyi 1969). These relationship can be a source of instrumental support (e.g. moving houses, advice in dealing with authorities), but they may be less emotionally close based on their shorter relationship history.

This study uses network types to investigate the implications of social networks for indicators of integration and engagement in transnational activities, as well as the association between support networks and loneliness in migrants. Primarily differentiated on the basis of structural features (e.g. network size, frequency of contact), network types offer a complementary tool to identify types of migrants’ social support networks. Network types allow heterotypic relationships to various ties be examined simultaneously, and identify a set of underlying subgroups of individuals in the sample based on the intersection of multiple observed characteristics. Key features of network types are the size, homogeneity of ties composing the network, e.g. family members (kin), friends and acquaintances (non-kin), the geographic distance and the frequency of contact with network members (Mitchell 1969; Fischer 1982). Past studies have focused on several dimensions of social networks, such as supportive–unsupportive, diverse–homogenous, and kin versus non-kin based, revealing four core typologies: ‘diverse’ (a variety of sources of support), ‘kin-focused,’

‘non-kin-focused,’ and ‘restricted’ (few sources of support and little interaction with network members (Fiori, Smith, and Antonucci 2007)). Variations are also evident, in particular in migrant samples (e.g. Karpinska and Dykstra 2018), because migrants are constantly building new ties in the places of residence and negotiating existing long-distance ties (Lubbers et al. 2010; Ryan and D’Angelo 2018). Therefore, an additional transnational vs. local dimension has to be taken into account when studying migrants’ social support networks.

The current study explores the link between migrants’ support networks (as transnational social fields) on one hand, and the transnational spaces on the other hand, defined as activities in the home- and host country. According to Levitt and Glick Schiller (2004, 1009) and Faist (2000), migrants’ (multi-ethnic) social connections or personal networks are regarded as transnational social fields, whereas transnational spaces denote the economic, political and religious activities across borders that contribute both to migrants’ integration and transnational activities. Transnational spaces include remittances and visits to the home country, occupational activities, as well as voluntary and voting behaviour in the home and destination country (Portes, Guarnizo, and Landolt 1999). Maintaining active association with the Catholic Church may also be considered as an important transnational activity for Poles because it serves as a meeting place with co-ethnics (White 2016) and safeguards the cultural identification with the home country (Toruńczyk-Ruiz 2008).

Transnationalism is related to the process of incorporation of immigrants in the receiving country, and transnational spaces do not necessarily impede the processes of acculturation and integration (Faist 2000; Itzigsohn and Giorguli Saucedo 2002). In line with this argument, we expect to find positive relationships between duration of residence, integration and transnationalism. More specifically, we expect that longer duration of residence in the host country is related to higher probabilities that migrants’ networks are locally-based (vs. transnational), diverse, and well-connected with kin. Activities in the country of destination serve as opportunity structures that allow people to meet and establish valuable social relationships (Mollenhorst, Völker, and Flap 2008; Verbrugge 1977). Therefore, we expect that engaging in activities in the host country (e.g. learning the Dutch language) will be positively related to the size and diversity in migrants’ networks.

On the other hand, activities in the country of origin serve as bastions of migrants’ ongoing identification with the home country and the long-term maintenance of certain origin-specific cultural traits. In line with the classical assimilation theories (Alba 1985; Alba and Nee 1997), we expect that the more migrants engage in activities in or related to the home country (e.g. remittances to Poland, attending religious services, and frequent visits), the more likely they will be embedded in small, homogeneous, kin-based networks with frequent kin-contact. Note that kin ties are likely to be part of all network constellations in migrant samples because they are considered as trustworthy relationships of high commitment (Fischer 1982; Litwak and Szelenyi 1969). Thus, we expect that both engaging in activities in the home and the host country is related to frequent contact with close family members (kin). Given the importance of social trust for establishing interpersonal ties and relationships in any context, the emergence and maintenance of social networks in the host country is particularly dependent on high levels of trustworthiness and low levels of wariness (Eade, Drinkwater, and Garapich 2006; Grzymała-Kazłowska 2005; Ryan et al. 2008). Therefore, we expect that the more trustworthy

migrants are, the more likely they will be embedded in big, diverse, and networks with many non-kin ties.

### *Social support networks and loneliness in migrants*

Although much attention has been devoted to migrants' social networks, confidants networks are considered particularly appropriate for studying loneliness as not all ties that migrants have are considered to be confidants who can provide affection (e.g. see Herz et al. 2014). Social networks affect well-being and are directly tied to loneliness through several pathways, foremost through the provision of social support (Berkman et al. 2000). Further, social networks provide opportunities for companionship and social engagement; and participation in meaningful community activities brings social recognition and feelings of belonging.

A diverse mix of emotionally and instrumentally supportive (aka multifunctional) network ties is needed to reduce loneliness (Derlega and Margulis 1982). Studies have found that in diverse, friend, and congregant network types respondents expressed a superior sense of subjective well-being, and among other indicators, less loneliness (Cacioppo, Fowler, and Christakis 2009; Litwin and Shiovitz-Ezra 2010). In particular, larger social networks of young respondents were related to less loneliness (Green et al. 2001). We expect that migrants with larger networks and many non-kin ties are less likely to be lonely compared to migrants with small and kin-based networks.

Research has shown that diversity in networks – as operationalised by having many social roles, e.g. being relative, friend, neighbour, and colleague – is associated with higher well-being (Litwin and Stoeckel 2013). Due to the finite capacity of migrants to socialise, investing in local networks can go at the costs of maintaining close ties with the transnational network, and vice versa. Therefore, we expect that migrants with a diverse support network are less lonely than migrants with a homogeneous support network.

Close relationships that accompany individuals throughout large stretches of their life-span are determined by more attachment than loose temporary relationships (Antonucci et al. 2010). For migrants, transnational relationships are likely the longest in duration, and transnational ties are also more likely to be based on shared cultural value systems. Because of this, friends and relatives living 'back home' safeguard the migrant's ethnic identity and skills (e.g. native language proficiency). This provides migrants with a sense of attachment and address migrants' need for belonging. Transnational networks are kin-oriented, closely knit, and they can be a source of affirmation and companionship (Ryan et al. 2008). Research on migrants' social contacts demonstrated that migrants often establish new non-kin ties in the destination context through their job, language courses or the neighbourhood (Eve 2010; Lubbers et al. 2010; Ryan 2011, 2015). Local networks, thus, have a shorter relationship history, and they are based non-kin ties and more susceptible to disruption. Migrants with a multifunctional network who are able to balance local and transnational networks and their respective support resources from diverse ties, are assumed to be least lonely.

Taken everything together, large and diverse networks, consisting of both many non-kin ties in the host country and many kin ties in the home country, should be associated with least loneliness. We expect to observe this type of network most often for trustworthy and locally active migrants with a long duration of residence in the host country.

## Data and methods

### Sample

The study uses data from the Families of Poles in the Netherlands (FPN) survey (Karpinska, Dykstra, and Fokkema 2016). The FPN survey is based on a blueprint of the Generations and Gender Survey (GGS, <http://www.ggp-i.org/>; Fokkema et al. 2016). Data collection for the survey took place between October 2014 and April 2015, and was facilitated by two modes in Polish or Dutch language: a web survey (76.4%) and computer-assisted personal interviews (CAPI, 23.6%). The response rate was 51.5%, one of the highest among surveys of Polish migrants in the Netherlands. Next to questions about migration history and intentions to return or to move to another country, the FPN has questions about the family of origin, exchanges of money, practical and emotional support, espoused family obligations, and marital and parenthood histories. The analytical sample included all cases with complete information on all the variables used in the analyses ( $n = 1131$ ). Table 1 provides information on sample characteristics and summary statistics of the social network types. (Descriptive sample statistics by loneliness status are provided in Supplementary material Table S1).

### Analytical strategy

The dominant approach on social networks and social support use assessment inventories related to the network, encompassing a count of all possible relationships with others regardless of the degree of affinity with them, excluding the intensity of support and using crude measures for level of perceived support from a broad range of unidentified sources (for a review see Antonucci et al. 2010). In contrast, this study uses confidant networks that are composed solely of persons who are defined by focal respondents as especially meaningful to them (Litwin and Stoeckel 2013). This direct approach to identifying confidants in the social network uses a name generator that asks, for example, with whom one discussed important personal matters in the previous 12 months. Once confidants are nominated, subsequent additional information can be solicited on the cited persons, producing a more exact representation of the composition of and interactions with the identified social network.

To investigate the social support networks among migrants, first we delineated different types of support networks by modelling networks of received emotional support using latent class analyses (LCA). LCA assumes a probabilistic relationship between the latent concept (in this case, the social support networks of Poles in the Netherlands) and manifest indicators. Aggregate measures of the level of and variation in supportiveness, the degree of transnationality and diversity, the extent to which the support network is based on kin and non-kin, and the face-to-face and on-line contact frequency with kin were used as manifest indicators. The manifest indicators used information from all supporters reported by the respondents, including support provided from the partner, if there was one. The LCA resulted in a latent categorical variable that describes qualitative differences between classes, which are treated as mutually exclusive and exhaustive in subsequent analyses. We identified the optimal number of classes based on model fit (Bayesian Information Criterion (BIC)), parsimoniousness and interpretability of the classes (see Supplementary material Table S2) using Stata 14.2 MP plug-in by Lanza et al. (2014). Table 2 present the relationships between the manifest variables and the latent categorical variable social support network.

**Table 1.** Descriptive sample statistics.

	<i>n</i>	%	<i>m</i>	<i>sd</i>	min	max
Loneliness						
Not lonely	397	35.10			0	1
Lonely	734	64.90				
Social support networks						
No confidants	202	17.86			1	5
Diverse	309	27.32				
Virtual	371	32.80				
Kin-focused low contact	178	15.74				
Kin-focused high-contact	71	6.28				
Residence length			6.45	3.26	1	23
Lived abroad before					0	1
No	857	75.77				
Yes	274	24.23				
Dutch proficiency			2.77	1.07	1	5
Experienced discrimination			1.72	0.71		
Sends remittances					0	1
No	1,08	95.49				
Yes	51	4.51				
Return intentions					0	1
No	778	68.79				
Yes	353	31.21				
Attends religious services			7.83	15.73	0	200
Visits to Poland			2.40	2.71	0	50
Trustworthiness			0.79	0.76	0	4
Gender						
Male						
Female	454	40.14			0	1
Age	677	59.86			19	59
Education			34.01	7.17		
Low	36	3.18			0	2
Intermediate	710	62.78				
High	385	34.04				
Employment status						
Employed	875	77.37			0	4
Student	22	1.95				
Self-employed	122	10.79				
Unemployed	83	7.34				
Disabled/other	29	2.56				
Partner						
No	964	85.23				
Yes	167	14.77				
Income						
Less than 2000 euro	464	41.03			0	2
More than 2000 euro	110	9.73				
Refused/don't know	557	49.25				
Health						
Good	919	81.26			0	1
Poor	212	18.74				

After the class membership for all respondents was defined, we applied multinomial logistic regression analysis to determine the associations between transnational spaces, defined as activities in the home country and the host country, and social trust to social support networks. To facilitate the interpretation, we estimated marginal effects presented in Table 3, which give the mean change in probability by one unit of the predictor, when other variables are kept constant at sample means. This analytical approach does not reflect causality, nor do we aim to establish causal relationships between social networks, integration and loneliness.

**Table 2.** Descriptive statistics and probabilities of network support variables across latent classes ( $N = 1131$ ).

	Class 1 No confidants	Class 2 Diverse	Class 3 Virtual	Class 4 Kin-focused 1	Class 5 Kin-focused 2
Prevalence	17.86	27.32	32.80	15.74	6.28
Number of kin supporters					
Low	<b>0.76</b>	0.26	<b>0.78</b>	0.27	0.36
Medium	0.18	0.20	0.13	0.30	0.17
High	0.06	<b>0.55</b>	0.09	<b>0.43</b>	<b>0.47</b>
Intensity in face-to-face contact close kin					
Low	<b>0.84</b>	<b>0.92</b>	<b>0.98</b>	<b>0.88</b>	0.02
High	0.16	0.08	0.02	0.12	<b>0.98</b>
Variation in face-to-face contact intensity					
Low	<b>0.51</b>	<b>1.00</b>	<b>0.98</b>	<b>0.55</b>	0.01
High	0.49	0.00	0.02	0.45	<b>0.99</b>
Intensity in virtual contact close kin					
Low	<b>0.83</b>	0.22	0.28	<b>0.79</b>	0.04
Medium	0.17	0.30	0.30	0.21	<b>0.48</b>
High	0.00	<b>0.48</b>	<b>0.42</b>	0.00	<b>0.47</b>
Variation in virtual contact close kin					
Low	0.00	<b>0.79</b>	<b>0.76</b>	0.02	0.30
Medium	0.17	0.21	0.24	0.08	<b>0.59</b>
High	<b>0.83</b>	0.00	0.00	<b>0.89</b>	0.12
Number of non-kin supporters					
Low	<b>0.66</b>	0.16	<b>0.74</b>	0.20	<b>0.52</b>
Medium	0.31	<b>0.49</b>	0.23	<b>0.43</b>	0.31
High	0.02	0.35	0.03	0.37	0.17
Number of social roles					
Low	<b>0.93</b>	0.01	<b>0.99</b>	0.00	<b>0.46</b>
Medium	0.07	0.45	0.01	<b>0.49</b>	0.29
High	0.00	<b>0.55</b>	0.00	<b>0.51</b>	0.24
Proportion of local supporters					
Local	0.31	0.25	0.16	0.29	0.27
Transnational	<b>0.69</b>	<b>0.75</b>	<b>0.84</b>	<b>0.71</b>	<b>0.73</b>

Last, we tested the hypotheses on social support networks and loneliness using logistic regression models where the latent class variable distinguishing between different support networks served as a predictor and loneliness as an outcome. Based on previous loneliness research the logistic regression models included additional socio-demographic variables as controls (Dykstra and Fokkema 2007; Fokkema and Naderi 2013). To facilitate the interpretation, we estimated marginal effects of the relationship between support networks and loneliness (Supplementary material Table S5) plotted in Figure 1. The logistic regression results containing all predictor variables are available in Table 4.

**Table 3.** Marginal effects of multinomial regression model predicting social support networks of Polish migrants in the Netherlands ( $N = 1131$ ).

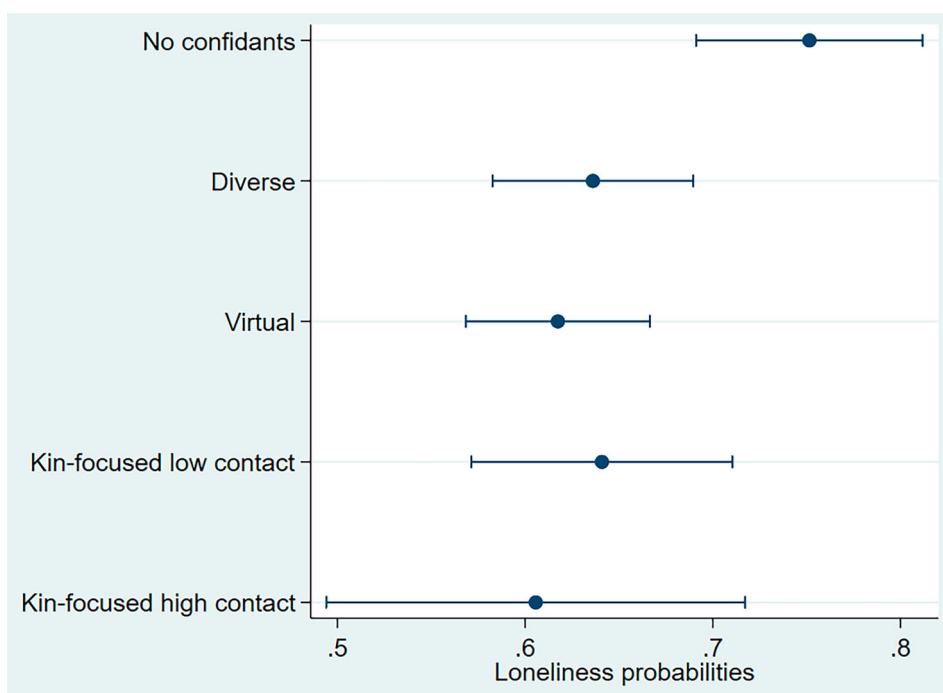
	No confidants	Diverse	Virtual	Kin-focused 1	Kin-focused 2
Residence length	0.001	−0.006	0.006	−0.001	0.002
Lived abroad before	−0.012	0.073*	−0.067*	0.005	0.001
Dutch proficiency	−0.024*	0.039**	−0.033*	0.025*	−0.007
Experienced discrimination	−0.028	0.015	−0.013	0.025	0.010
Sends remittances	−0.082	0.063	−0.097	0.113**	0.004
Return intentions	−0.013	0.046	0.015	−0.017	−0.031
Attends religious services	0.001	0.002*	0.001	0.002	0.00
Visits to Poland	−0.010	0.007	−0.009	0.002	0.010
Trustworthiness	−0.042**	0.026	0.006	0.000	0.010

Notes: McFadden's  $R^2 = 0.028$ . Significance levels: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

### Measures of social support networks

All questions about emotional support asked in the FPN survey pertained to respondents 'discussing important personal matters with [confidant] in the previous 12 months, excluding professional help from psychologist or social worker'. We used two measures to capture network size: (1) the number of kin supporters and (2) number of non-kin supporters identified as confidants. These measures also provided information on network homogeneity. Regarding kin supporters, respondents choose from a list containing partner, father mother, any of the respondent's biological, step or adopted children, as well as any sibling. Non-kin was identified from a list containing friend, acquaintance, colleague, and someone else. Beside a list of roles distinguishing between kin and non-kin members, we used the name generator available in the data survey to discern kin from non-kin members. The (3) *number of different roles* (e.g. parent, brother, friend, neighbour) that provided emotional support was used as an additional measure to determine network homogeneity.

Four measures assessed the frequency of contact with kin: (4) how often per year a respondent saw his/her parents, siblings or partner face-to-face, averaged for all family members mentioned (5) the variation in face-to-face contact (standard deviation), (6) how often per year a respondent was in touch with his/her parents, siblings or partner via telephone, Skype or other means of modern communication, averaged for all family members mentioned; and (7) the variation in virtual contact (standard deviation) possible answers for questions ranged from 'more than once a week' to 'seldom or never'. After reverse coding, the scores of contact frequency were averaged for all family members,



**Figure 1.** Predictive margins for social network support on loneliness with 95% CI.

**Table 4.** Regression model predicting loneliness of Polish migrants in the Netherlands ( $N = 1131$ ).

	OR	SE	95% CI	
Social support networks				
Diverse	0.56**	0.12	0.37	0.86
Virtual	0.52**	0.11	0.35	0.77
Kin-focused low contact	0.58*	0.14	0.36	0.92
Kin-focused high-contact	0.49*	0.15	0.27	0.89
Female (Male)	0.77	0.11	0.58	1.01
Age	0.98	0.01	0.96	1.00
Education (Intermediate)				
Low	0.77	0.29	0.37	1.60
High	0.84	0.12	0.64	1.11
Employment status (Employed)				
Student	0.76	0.35	0.31	1.86
Self-employed	1.13	0.24	0.74	1.71
Unemployed	1.87*	0.56	1.04	3.35
Disabled/other	0.53	0.22	0.24	1.19
Partner (No partner)	0.66*	0.13	0.45	0.97
Income (Less than 2000 euro)				
More than 2000 euro	0.60*	0.14	0.38	0.95
Refused/don't know	0.73	0.10	0.56	0.96
Poor health (Good health)	2.43***	0.47	1.67	3.55
Intercept	1.35***	6.61	5.18	3.52

Notes: OR = Odds ratios, SE = Standard error, CI = Confidence intervals. Significance levels: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

separately for face-to-face and virtual contact. The *variation in the intensity of contact* comprised of the standard deviation of a respondent's contact frequency averaged for all family members, also separately for face-to-face and virtual contact. Note that contact (and thus variation and intensity) was not assessed for non-kin.

In order to measure network transnationality we took into account (8) the ratio of confidants based in the Netherlands versus confidants based in Poland. The variable is the *proportion of local supporters* (based in the Netherlands) coded as 1='high' (versus 0='low') if more than 50% of all emotional supporters were stated to live in the Netherlands as opposed to the identified supporters based in Poland. Poles living in the Netherlands, other than the partner or kin, counted as local supporters. Typically, variables used in LCA are dichotomised or categorised for reasons of parsimony and to increase manageability of the data. Following Miche, Huxhold, and Stevens 2013 and Ellwardt, Drinkwater, and van Tilburg (2016), we recoded the continuous variables (1) to (7) into 1='low', 2='medium', and 3='high' using tertiles. Using the sample's percentile distributions as cut-off points facilitated three comparable group sizes without imposing arbitrary theoretical categories.

### Measures of transnational spaces

Sending remittances (yes or no), return intentions (yes or no), attending religious services (times per year) and visits to Poland (times per year) were used to measure transnational activities related to the home country. Residence length in the Netherlands (in years), ever lived abroad prior to the migration the Netherlands (yes or no), Dutch language proficiency (averaging the reading, writing and speaking competences on a scale from 1 (poor) to 5 (excellent)); and experiences of discrimination (averaging discrimination experiences when applying for a job or internship, at work, on the street, in shops, public transport, at associations, sports clubs, when going out, at clubs or by public

services (police, immigration, tax office)) were used as measures of activities/engagement with the home country. Trustworthiness was measured on a 0 (low) to 4 (high) scale constructed by adding scores on the questions ‘Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?’ and ‘Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?’.

### **Loneliness**

Loneliness was measured with the abbreviated 6-item version of the De Jong Gierveld scale (De Jong Gierveld, and, and Van Tilburg 2006). This validated scale produces scores ranging from 0 (‘not lonely’) to 6 (‘intensely lonely’). None of the items refers directly to loneliness (the word loneliness is not mentioned). The scale reliability was high ( $\alpha=0.79$ ) and we used 2 as cut-off point for lonely based on the published scale protocol (De Jong Gierveld 1999).

### **Control variables**

In the logistic regressions predicting loneliness we controlled for factors shown in previous studies to be associated with loneliness, such as gender, age, level of education, employment status, partner status, financial strain and health status (Fokkema, de Jong Gierveld, and Dykstra 2012). Age in years was used as a continuous variable, and level of education was coded in accordance with the International Standard Classification of Education (ISCED-97), distinguishing between low (ISCED 0-2), intermediate (ISCED 3-4), and high (ISCED 5-6). Employment status was measured with a five-category variable distinguishing between employed, student, self-employed, unemployed and disabled. Partner status is a dichotomous variable (yes or no) and financial strain was measured by a categorical household income variable: low income (less than 2000e), high income (more than 2000e) and unknown income. Last, health status was captured with a dummy variable indicating whether or not respondents rated their own health as 0 ‘less than good’ versus 1 ‘good or very good’.

## **Results**

### **Descriptive results**

More than 60% of respondents scored as lonely and the sample consisted of more females (59%) compared to males. The mean age of respondents was 34 and around one-third of the sample completed higher education. More than 60% of the respondents obtained a diploma at the intermediate level and very few were low educated. The majority of respondents (77%) was employed and only about 7% were not employed at the time of the interview. Most of the respondents (85%) had a partner and were in good health (81%). With regards to income, around 40% reported household income lower than 2,000 euros.

The average duration of stay in the Netherlands for Polish migrants is slightly higher than 6 years and around 75% of the respondents have never lived abroad before. Dutch language proficiency in this sample is self-assessed by respondents as moderate (2.7 out

of 5) and respondents reported low levels of experienced discrimination (1.72 out of 5). The majority of respondents do not send remittances to ties in Poland and one-third of the sample has intentions to return to Poland in the future. The respondents stated that they attend services at the Roman Catholic Church in the Netherlands on average around 7 times per year, and go back to Poland twice a year. Notably, levels of trustworthiness are low in this migrant sample (shown by the average of 0.79 out of 4 on the trustworthiness scale).

### *Latent class analysis: social support networks*

Correlations between the manifest predictor variables of social support were mostly low to moderate (Supplementary material Table S2), supporting the construction of a latent typology rather than a unidimensional scale. The series of unconditional LCA revealed six classes, as the model fit improved vastly until that number and levelled off thereafter. After inspecting the six-class solution, we found two classes to be too similar in substantive terms. In favour of nonredundancy and parsimony we opted for using a five-class solution (BIC = 1665.83). The relative entropy (0.84) were satisfactory in the five-class solution and fit statistics for models with up to seven classes are presented in Supplementary material Table S3.

The first class, as expected, is characterised by low likelihood of having many kin and non-kin supporters, as well as low likelihood of having frequent face-to-face and virtual contact. This class also has the lowest likelihood of transnational ties (0.69) compared to the other classes. We label this class as 'no confidants' (later we also refer to it as 'restricted') given its resemblance to a type reported elsewhere (Djundeva, Dykstra, and Fokkema 2018; Fiori, Smith, and Antonucci 2007; Litwin and Shiovitz-Ezra 2010). This type is not the most frequent, but also not the least frequent – 17.9% of all respondents can be classified as having no confidants. The second type is labelled as 'diverse' (27.3%). The migrants in this class have high likelihood for many kin supporters, as well as moderate likelihood to have non-kin supporters. This type is marked by the highest probability of having diverse network, consisting of supporters in different roles (e.g. parent, friend, sibling etc.) and notably, low likelihood of frequent contact with family members. The third class is the most frequent social network type, 32.8% of the respondents belonging to this class. It is marked by the likelihood of virtual (online) contact (0.42), probably with selected kin ties due to the low likelihood for many kin supporters; and moderate likelihood of having emotional support from non-kin. This class has the highest likelihood of transnationally-based ties (0.84).

The fourth 'kin-focused low contact' and the fifth type 'kin-focused high contact' are similar to each other in the sense that both have high likelihood of being based on many kin supporters. However, the fourth class is characterised by moderate likelihood of non-kin support, and high likelihood of diversity with respect to supportive roles. The 'kin-focused low contact' type is less homogeneous compared to the fifth class, with low likelihood of face-to-face contact with family members. The fifth 'kin-focused high contact' class is marked by high probability of face-to-face contact with family members (0.98), and low probability of non-kin support. Based on the high likelihood of face-to-face contact frequency with family members and lower transnationality likelihood (compared to the 'virtual' and 'low contact kin-focused'), we assume that the fifth

type consist of respondents who's immediate family members also reside in the Netherlands.

### *Transnational activities and social support networks*

To assess whether the distribution of social support networks varied by transnational activities in the home and host country, we performed multinomial logit regression (shown in Supplementary Table S4). Table 3 depicts the marginal probabilities of these models. The results suggest that Dutch language proficiency is the most important predictor of migrants' social support networks. Respondents who are more fluent in the language of the host country (Dutch) are less likely to have restricted 'no confidants' networks ( $b = -0.024$ ) or to have support networks based on virtual contact ( $b = -0.033$ ). However, good language proficiency is associated with higher likelihood of having kin-focused networks with moderate contact frequency with kin. Polish migrants that send remittances are also more likely to have the kin-focused networks with low contact frequency with kin ( $b = 0.113$ ). Attending church services in the Netherlands is associated with high likelihood of having diverse networks, and being trustworthy is associated with lower likelihood of having restricted 'no confidants' networks ( $b = -0.042$ ).

Surprisingly, the duration of stay in the Netherlands is not associated with social support networks. Considering that the relationship between the duration of stay and social support networks is not confounded by the rest of the activities in the home and host country, we assume that the lack of association is due to sample selection. Most of the sample respondents have already been in the Netherlands for at least 5 years, and they are registered in the Dutch municipality registers. They are less likely to be circular and seasonal migrants (Engbersen et al. 2013), suggesting that regardless of how well migrants are integrated in the Dutch Society, they are not newly arrived migrants with networks limited to co-ethnics.

### *Social support networks and loneliness*

The relationship between social support networks and loneliness was modelled using a logistic regression model. The results from a fully adjusted model are shown in Table 4. The marginal effects of the association between social support networks loneliness (presented in the Supplementary material Table S5) are plotted in Figure 1. The results show that migrants with the highest likelihood of having restricted 'no confidants' networks also have the highest likelihood of being lonely. These results confirmed our expectations that low network size, homogeneity, and lack of role diversity in networks are related to loneliness. The results from Figure 1 also suggest that there is not that much difference in loneliness levels between the other four social network types. According to sensitivity analysis not shown here, differences in loneliness between the other four of the network types are not sensitive to confounding factors. Social support networks are the most important predictor of loneliness, confirming our expectations. In addition to them, factors such as being unemployed, having low household income (less than 2000 euro) and being in poor health are also associated with loneliness, in line with previous literature on loneliness that has shown significant associations between loneliness (Fokkema, de Jong Gierveld, and Dykstra 2012).

## Discussion

In migration studies, more and more attention is being paid to migrants' social networks, but only a handful of papers focus specifically on the web of confidants (e.g. Herz et al. 2014; Van Tubergen 2014). This study is in the minority of studies that have used 'confidant' networks to investigate social support in migrants. As all existing ties do not serve as confidants (Herz et al. 2014), focusing on confidants networks is particularly relevant for the study of loneliness.

Because migrants differ in their motivation and capacity to manage their support networks within and across country borders, we expected that different types of support networks may be delineated among Polish migrants. We utilised information on received emotional support from both local and transnational networks that connect migrants to co-ethnic ties in the home country and to ties in the host community. In doing so, we built on previous network type studies that have used only size, and friend vs. family distinctions. 'Diverse', 'family-focused', 'friend-focused', and 'restricted' network types have previously been discussed in the non-migration oriented literature (Djundeva, Dykstra, and Fokkema 2018; Litwin and Shiovitz-Ezra 2010) but to our knowledge this is among the first studies to employ social network types investigating migrant support networks. Next to dimensions identified in previous research (e.g. size, kin and non-kin diversity, homogeneity and contact frequency), our study considered a dimension especially relevant to migrants, transnationality. Five distinct network types emerged from the latent class analyses. The restricted 'no confidants' type is associated with loneliness in this study, and moreover has likeness to the 'detached' type found by Karpinska and Dykstra (2018), and it is similar to the 'restricted' types found in other studies where Poles were also included (Djundeva, Dykstra, and Fokkema 2018; Litwin and Stoeckel 2013). The typical 'diverse' social network type (similar to the diverse type in Fiori, Smith, and Antonucci 2007) in this study was characterised by a large non-homogeneous network with kin and non-kin support, and somewhat less by transnational ties. Instead of one, two different kin-based networks emerged, differentiated by their overall levels of homogeneity and contact with close family members. The most idiosyncratic type in this study is not comparable to previous network studies, but well in line with the ethnographic research on social networks and belonging (Toruńczyk-Ruiz 2008). This is the 'virtual' type that was characterised by high probability of the support network being based in Poland with a selected kin and non-kin ties.

A number of empirical studies focusing on the relationship between home and host country have indicated that integration and transnationalism can be concurrent (Levitt 2003, 192; Levitt and Schiller 2004; Morawska 2003, 133). Results from the analyses between activities in host and the home country, and social networks revealed that the host country language proficiency tends to be one of the most important determinants of the size and diversity of migrants' support networks, corroborating assumptions found commonly in the assimilation and integration literature (e.g. Alba 1985; Alba and Nee 1997). Sending remittances to ties in the home country in this study is related to keeping one's network relatively small and transnational, focusing the energy on maintaining close relationships with the immediate family members ('kin-focused low-contact' type). According to our expectation that integration and transnationalism go hand in hand, we found a connection between maintaining ties to 'ethnic' institutions, such as the Roman Catholic Church and

having larger, more diverse network in the Netherlands. The host country language proficiency seems an important predictor of local activities, also including visits to church. Surprisingly, activities that were related to the home country, such as visits to Poland and intentions to return to the home country were not associated with social networks, but this may be due to the fact that transnationality, or more precise having one's closest confidants based in Poland was a characteristic that all of the network types in the study shared.

This study found no differences in loneliness between migrants who had high likelihood to have transnational ties, and sufficient confidants in their support networks. However, in line with previous studies on loneliness and social networks (Cacioppo, Fowler, and Christakis 2009; Green et al. 2001; Koelet and de Valk 2016) we found that social isolation, or more specifically, having few persons to confide to is related to loneliness for migrants too. The apparent ease of mobility and long-distance communication may lead to underestimating the ongoing salience of place and emplacement, even for relatively young migrants. As Savage, Bagnall, and Longhurst (2005, 8) stated 'people's dispositions are embodied, and thereby necessarily territorially located' and thus 'even the most sophisticated facilitators of contact cannot function as a faithful counterpart of life in the original Homeland'. The conflict between the desire for attachment and familiarity and the necessity for integration and belonging to the host country is likely related to feelings of misplacement and loneliness.

The migrants in our study were representative of the Polish migrants in the Netherlands. Migration research continuously faces challenges when it comes to data availability and representative samples of migrants. We recommend that future research on mental health and loneliness goes beyond comparing migrants with host populations, and instead focuses on addressing selection into migration and differences between migrants. Future research should also aim to utilise a more detailed inventory on instrumental support that is particularly relevant to migrants. This may include, for example, receiving advice on healthcare and housing, school enrolment for children, help with translating letters and similar inventories that better answer migrants' needs as compared to help with practical household tasks. Last, because the data is cross-sectional we cannot claim causal relationships between activities in the home and the host country, social support networks and loneliness. Nonetheless, our findings caution against using purely traditional linear approaches to capturing diversity in migrants' networks (Cacioppo, Fowler, and Christakis 2009) because they obscure important and meaningful differences in how migrants connect with family and friends across borders.

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