

Residential mobility and suicide: understanding the role of partnership transitions, life stages and housing context.

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Topic. In recent decades, suicide has been one of the leading causes of death among the young and middle-aged European population. For older working-age groups (50–64 years), suicide was the seventh-leading cause of death (*GBD Compare*, 2017). In 2015, Belgium showed the fifth highest suicide rate in Europe, with about 17 suicides per 100,000 inhabitants (while the EU-28 average is 11). Understanding the determinants of suicide, precisely the relation between life-course events and suicide draws more and more scientific interest. For instance, many studies on separations and divorces could prove that union dissolutions are highly associated with suicide (Bruce & Kim, 1992; Heikkinen et al., 1993; Okada & Samreth, 2013). Even if residential mobility and union transitions go hand in hand, there is little knowledge about the link between internal migration and suicide risk, especially for working-age populations. Literature is still scarce on the topic, and the few articles on the relationship between residential mobility and suicide among adults omit considering the life course context of the move regarding union transitions and age. This study investigates the relationship between residential mobility within Belgium and the risk of suicide in the working-age population. It seeks to unravel the possible determinants of this relation, focusing on the union transitions (dissolution, formation, no union, union stability) that accompany the move and the life stage (younger, middle-aged, and older working-aged populations) during which it happens.

The Belgian context is fascinating to study this question. First, in Belgium, the number of divorces per 1,000 marriages has risen over the last decades (Eurostat, 2021). The demand for housing has also increased, making it difficult for recently separated individuals and parents to find a decent and affordable place, especially in post-separation economic loss (Biotteau et al., 2019; Feijten, 2005). Second

Theoretical and empirical background. According to the literature, residential mobility is associated with mixed consequences on mental health, depending on its context and motivation (Choi & Oishi, 2020; Oishi & Schimmack, 2010). On the one hand, mobility is an essential asset for individuals' development, their professional and personal opportunities (especially for men: Mulder and Van Ham, 2005) and enlarging the social network (Oishi, 2010). On the other hand, according to the familiarity-liking theory, moving and adapting to a new environment requires individuals to break some social ties and change their habits and lifestyle (Magdol, 2002; Oishi & Talhelm, 2012). Also, it is essential to note a reverse causation phenomenon according to which poor physical and/or mental health can play on the risk of moving or not moving (Morris et al., 2018). An essential piece of work in the literature linking mobility and suicide is the study by Hagedoorn and Helbich (2022), which shows that, unexpectedly, a change of neighbourhood was associated with a lower suicide risk than immobility in the Netherlands, among the 20-64 year-old population. In Belgium, contrary to other countries, such as the Netherlands, the housing market is said to be static: it presents incentives for homeownership and residential immobility, and short provision in social

rental residences. The real estate transfer tax is high in Belgium – about 10 to 12% of the real estate value (RSM, 2023)- whereas it is less expensive in more dynamic contexts, such as the Netherlands – 2% (CMS, 2023) - or Finland – 4% (PWC, 2023). If mobility can be considered a solution to an unsatisfactory living environment in the Netherlands, mobility is associated with high costs in Belgium and is often avoided, if possible. **As a first hypothesis, we assume that mobility is associated with higher suicide risks than immobility in Belgium.**

Union dissolution is a common reason to move. There is already extensive theoretical and empirical literature on the antagonistic relation between union dissolutions and mental health (US: Rhoades et al., 2011; Sweden: Switek and Easterlin, 2018; Norway: Næss et al., 2015). Right after separation, the decision of who moves and who stays in the previously shared place is complex information. According to a cost-benefit approach, we can assume that they will likely move if one does not have enough financial means to afford those costs (Mulder & Malmberg, 2011; Mulder & Wagner, 2010). Studies in Belgium confirmed women’s higher risk of moving after separation, especially among the lower-educated ex-couples (Theunis et al., 2018). Beyond that, we can assume that the person who decides to break up is likely to be the person who moves out of the shared place (Kolodziej-Zaleska & Przybyla-Basista, 2020; Symoens et al., 2013). Adverse outcomes characterise mobility in the context of separation. The new residence is often found in an emergency and has fewer resources (Lersch & Vidal, 2014) and can be considered, to some extent, as a “forced” or unplanned move (De Groot et al., 2011). Mobility can also mark the start of a new cohabitation and the first step of a new union. This facet of mobility is less studied (Brandén & Haandrikman, 2019). Within existing couples, mobility is often associated with increased wealth or the evolution of family life, such as marriage, pregnancy, or accession to homeownership (Michielin & Mulder, 2008). In general, the mobility of a couple is associated with more positive outcomes for men than for women, as the man's professional career often triggers the couple's mobility (Brandén, 2014; Cooke, 2008). For unpartnered individuals, mobility can have many motivations, such as a professional change or the development of the housing career, by acceding to homeownership. **As a second hypothesis, we assume that the positive relationship between residential mobility and suicide depends on the context of the move. Compared to immobility, mobility is positively associated with suicide when it is accompanied by a union dissolution. In the context of a union formation or no union change (single and partnered individuals remain in the same situation as before the move), moving is not associated with higher suicide risk than immobility.**

Life events do not carry the same social significance at different ages. Young adults are also the most mobile population, partially explained by a period of experimentation, with shorter and more numerous unions but also related to education and economic constraints (Bernard et al., 2014). To a lesser extent, mobility is also expected from older adults who approach (pre-) retirement, aged 55 and more. This life period is marked by health-related and financial vulnerability and changes (Lin & Brown, 2020). For middle-aged adults, residential changes are less searched, as adults in their 40ies and 50ies are traditionally expected to be settled down (Kohli & Künemund, 2005). A study conducted in the UK shows that after the 30ies, “immobility

seems to be the norm for individuals” (Coulter & Van Ham, 2013). **As a third hypothesis, we assume that mobility is associated with higher risks of suicide than immobility for middle-aged adults aged 40 to 54, while this association is less visible for younger and older populations.**

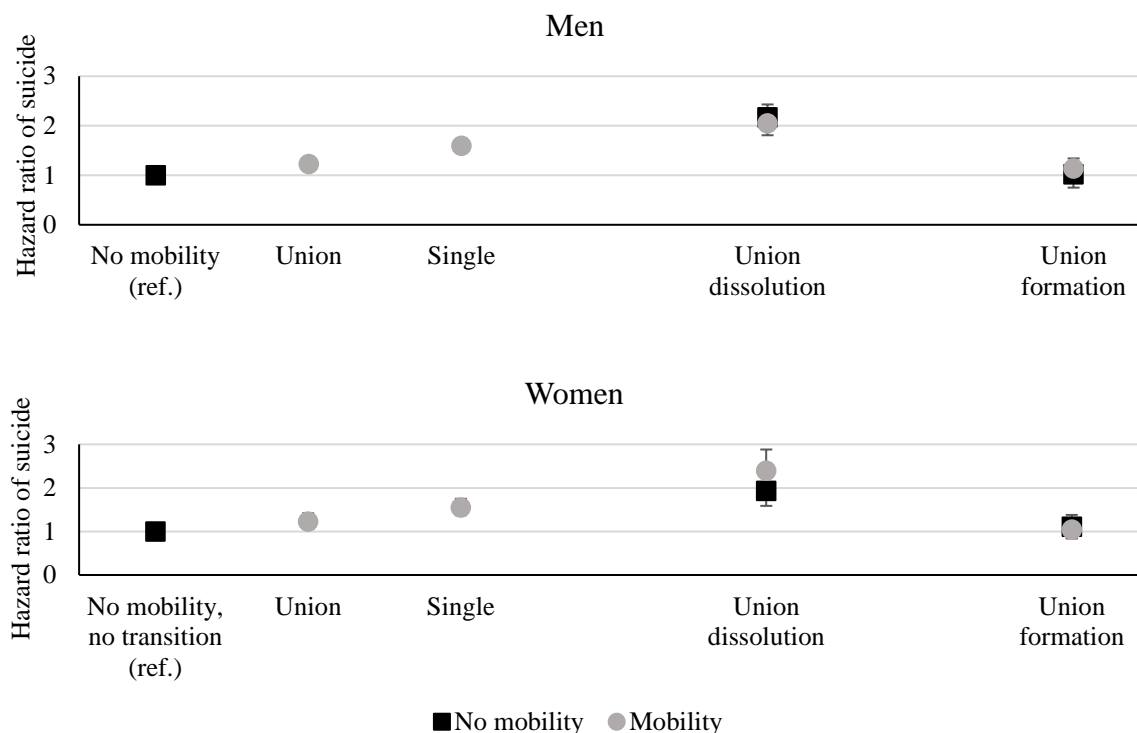
Data and method. This research will benefit from high-quality administrative datasets, including the Belgian National Register, 2001 and 2011 Census, as well as death certificates, covering the whole population registered in Belgium between 2008 and 2015, and following it through an event history analysis methodology. We concentrate on the adult population aged 20 to 64. We excluded the young and the older population due to the specificity of their suicide determinants. Cox proportional hazards models helped estimate the hazard of dying of suicide. Hazard ratios of suicide were calculated to investigate the moderating effect of mobility status and context with different age groups (20-39, 40-54, 55-64). Here, a stratification was preferred. As we work with population data, i.e. exhaustive data, and not on a representative survey, inferential statistics tools will be displayed through 95% confidence intervals in tables and figures, but they will not be strictly interpreted. Instead, substantial significance will be preferred (Bernardi et al., 2017). We suggest a significance threshold: two estimates are considered significantly different if less than 20% of their confidence intervals overlap.

Results. Through event history analysis, we could show that mobility (no matter the context) was associated with a higher risk of suicide than immobility. This confirms **our first hypothesis**. It corroborates previous studies showing the decrease in mental health outcomes for internal migrants (Hendriks et al., 2016; Liu et al., 2017) but is not in line with a previous study about the relationship between neighbourhood changes and suicide in the Netherlands (Hagedoorn & Helbich, 2022). Contrary to other contexts where residential mobility is more flexible and frequent, Belgium presents a static housing market, where homeownership is widespread and housing transactions are costly (van der Heijden et al., 2011). We can believe that residential mobility is a more challenging event in such a context that demands many resources and can have material consequences on the individual.

Figure 1 presents the results of the Cox Proportional hazard models, according to the mobility status and union transition during the observation period (moved at least once or did not move) of the individuals. Union dissolutions are highly associated with suicide risks, whether the individual moves or not (Figure 1). Union formation is not associated with higher or lower suicide risks, no matter whether one moves or not. **Our second hypothesis is nuanced.** Unexpectedly, for individuals who do not go through a union transition (stay in the same union or remain unpartnered), mobility is associated with a higher suicide risk than immobility.

FIGURE 1 – PROPORTIONAL HAZARD COX REGRESSION ON THE RISK OF SUICIDE, EXPRESSED IN HAZARD RATIO AND CONFIDENCE INTERVALS AT 95%. MODEL CONTROLS FOR AGE, PARENTAL STATUS, REGION AND AREA OF RESIDENCE (BEFORE THE MOVE), NATIONALITY, EDUCATIONAL LEVEL, OCCUPATIONAL STATUS, HOUSING TENURE AND BELGIAN MULTIPLE DEPRIVATION INDEX (OTAVOVA ET AL., 2023).

Data source: National Register 2008-2015, Census 2001 and 2011, Death certificates 2008-2015.



The relation between mobility and mental health differs for individuals in different life stages. We divided the population into three age categories: young adults (20-39), middle-aged adults (40-54) and older adults (55-64). We could notice that the middle-aged categories presented the highest excess mortality due to suicide when mobile, compared to immobile, no matter the context of the move, and **confirm our third hypothesis**. Contrarily, for younger and older adults, mobility in the context of union formation is not associated with higher suicide risks, and mobility in the context of no union change is associated with higher suicide risks for older adults.

Next steps and expected results. This observation might relate to Belgium’s housing policies and market. Residents in Belgium are encouraged to accede homeownership through better taxation. However, the housing system is not flexible, and housing transitions are costly. In such a context, moving is challenging and demands resources. In the Netherlands – where the rental market is more robust and the real estate transaction costs are lower - opposite results were found (Hagedoorn & Helbich, 2022). Our next step consists in conducting a similar analysis in a third context. In Finland, homeownership is normative (about 70% of the population owns-occupies their dwelling), but real estate transaction fees are lower than in Belgium. This translates into internal migration rates much higher in Finland than in Belgium (Bernard & Kolk, 2020). As mobility is associated with fewer expenses and fewer taxes and is more common in Finland, we expect the positive relationship between mobility and suicide to be less visible than in Belgium, especially when no union changes accompany it.

References.

- Bernard, A., Bell, M., & Charles-Edwards, E. (2014). Life-Course Transitions and the Age Profile of Internal Migration. *Population and Development Review*, 40(2), 213-239. <https://doi.org/10.1111/j.1728-4457.2014.00671.x>
- Bernard, A., & Kolk, M. (2020). Are Young Swedes Moving More? A Cohort Analysis of Internal Migration by Move Order. *European Journal of Population*, 36(3), 601-615. <https://doi.org/10.1007/s10680-019-09542-z>
- Bernardi, F., Chakhaia, L., & Leopold, L. (2017). ‘Sing Me a Song with Social Significance’: The (Mis)Use of Statistical Significance Testing in European Sociological Research. *European Sociological Review*, 33(1), Article 1. <https://doi.org/10.1093/esr/jcw047>
- Brandén, M. (2014). Gender, gender ideology, and couples’ migration decisions. *Journal of Family Issues*, 35(7), 950-971.
- Brandén, M., & Haandrikman, K. (2019). Who Moves to Whom? Gender Differences in the Distance Moved to a Shared Residence. *European Journal of Population*, 35(3), 435-458. <https://doi.org/10.1007/s10680-018-9490-4>
- Bruce, M. L., & Kim, K. M. (1992). Differences in the effects of divorce on major depression in men and women. *The American Journal of Psychiatry*, 149(7), 914-917.
- Choi, H., & Oishi, S. (2020). The psychology of residential mobility : A decade of progress. *Current opinion in psychology*, 32, 72-75.
- CMS. (2023). *Real estate transaction costs and taxes in Netherlands*. CMS Law Tax Future. <https://cms.law/en/int/expert-guides/cms-expert-guide-to-real-estate-transaction-costs-and-taxes/netherlands>
- Cooke, T. J. (2008). Migration in a family way. *Population, space and place*, 14(4), 255-265.
- Coulter, R., & Van Ham, M. (2013). Following people through time : An analysis of individual residential mobility biographies. *Housing Studies*, 28(7), 1037-1055.
- De Groot, C., Mulder, C. H., Das, M., & Manting, D. (2011). Life events and the gap between intention to move and actual mobility. *Environment and planning A*, 43(1), 48-66.
- GBD Compare. (2017). Institute for Health Metrics and Evaluation. <http://vizhub.healthdata.org/gbd-compare>
- Hagedoorn, P., & Helbich, M. (2022). Longitudinal effects of physical and social neighbourhood change on suicide mortality : A full population cohort study among movers and non-movers in the Netherlands. *Social Science & Medicine*, 294, 114690. <https://doi.org/10.1016/j.socscimed.2021.114690>
- Heikkinen, M., Aro, H., & Lönnqvist, J. (1993). Life events and social support in suicide. *Suicide and Life-Threatening Behavior*, 23(4), 343-358.
- Hendriks, M., Ludwigs, K., & Veenhoven, R. (2016). Why are Locals Happier than Internal Migrants? The Role of Daily Life. *Social Indicators Research*, 125(2), 481-508. <https://doi.org/10.1007/s11205-014-0856-7>
- Kohli, M., & Künemund, H. (2005). The midlife generation in the family : Patterns and exchange of support. In *Middle adulthood : A lifespan perspective* (Sage Thousand Oaks, p. 35-61). https://scholar.google.com/scholar_lookup?title=The%20midlife%20generation%20in%20the%20family%3A%20patterns%20of%20exchange%20and%20support&pages=35-62&publication_year=2005&author=Kohli%2CK&author=Kunemund%2CH
- Kolodziej-Zaleska, A., & Przybyla-Basista, H. (2020). The Role of Ego-Resiliency in Maintaining Post-divorce Well-being in Initiators and Non-Initiators of Divorce. *Journal of Divorce & Remarriage*, 61(5), 366-383.
- Lersch, P. M., & Vidal, S. (2014). Falling out of love and down the housing ladder : A longitudinal analysis of marital separation and home ownership. *European sociological review*, 30(4), 512-524.
- Lin, I.-F., & Brown, S. L. (2020). Consequences of Later-Life Divorce and Widowhood for Adult Well-Being : A Call for the Convalescence Model. *Journal of Family Theory & Review*, 12(2), 264-277. <https://doi.org/10.1111/jftr.12366>
- Liu, Y., Zhang, F., Wu, F., Liu, Y., & Li, Z. (2017). The subjective wellbeing of migrants in Guangzhou, China : The impacts of the social and physical environment. *Cities*, 60, 333-342. <https://doi.org/10.1016/j.cities.2016.10.008>
- Magdol, L. (2002). Is moving gendered? The effects of residential mobility on the psychological well-being of men and women. *Sex roles*, 47(11-12), 553-560.
- Michielin, F., & Mulder, C. H. (2008). Family events and the residential mobility of couples. *Environment and Planning A*, 40(11), 2770-2790.
- Morris, T., Manley, D., & Sabel, C. E. (2018). Residential mobility : Towards progress in mobility health research. *Progress in human geography*, 42(1), Article 1.
- Mulder, C. H., & Malmberg, G. (2011). Moving related to separation : Who moves and to what distance. *Environment and Planning A*, 43(11), 2589-2607.
- Mulder, C. H., & Van Ham, M. (2005). Migration histories and occupational achievement. *Population, Space and Place*, 11(3), 173-186.
- Mulder, C. H., & Wagner, M. (2010). Union dissolution and mobility : Who moves from the family home after separation? *Journal of Marriage and Family*, 72(5), 1263-1273.

- Næss, S., Blekesaune, M., & Jakobsson, N. (2015). Marital transitions and life satisfaction : Evidence from longitudinal data from Norway. *Acta Sociologica*, 58(1), 63-78.
- Oishi, S. (2010). The psychology of residential mobility : Implications for the self, social relationships, and well-being. *Perspectives on Psychological Science*, 5(1), 5-21.
- Oishi, S., & Schimmack, U. (2010). Residential mobility, well-being, and mortality. *Journal of personality and social psychology*, 98(6), 980.
- Oishi, S., & Talhelm, T. (2012). Residential mobility : What psychological research reveals. *Current Directions in Psychological Science*, 21(6), 425-430.
- Okada, K., & Samreth, S. (2013). A study on the socio-economic determinants of suicide : Evidence from 13 European OECD countries. *The Journal of Socio-Economics*, 45, 78-85.
- Otavova, M., Masquelier, B., Faes, C., Van den Borre, L., Bouland, C., De Clercq, E., Vandeninden, B., De Bleser, A., & Devleesschauwer, B. (2023). Measuring small-area level deprivation in Belgium : The Belgian Index of Multiple Deprivation. *Spatial and Spatio-temporal Epidemiology*, 45, 100587. <https://doi.org/10.1016/j.sste.2023.100587>
- PWC. (2023). *Finland*. Worldwide Tax Summaries. <https://taxsummaries.pwc.com/finland/corporate/other-taxes>
- Rhoades, G. K., Kamp Dush, C. M., Atkins, D. C., Stanley, S. M., & Markman, H. J. (2011). Breaking up is hard to do : The impact of unmarried relationship dissolution on mental health and life satisfaction. *Journal of family psychology*, 25(3), 366.
- RSM. (2023, mars 13). *Acquiring Belgian Real Estate*. RSM Belgium. <https://www.rsm.global/belgium/en/service/real-estate-management/acquiring-belgian-real-estate>
- Switek, M., & Easterlin, R. A. (2018). Life transitions and life satisfaction during young adulthood. *Journal of Happiness Studies*, 19(1), 297-314.
- Symoens, S., Bastaits, K., Mortelmans, D., & Bracke, P. (2013). Breaking up, breaking hearts? Characteristics of the divorce process and well-being after divorce. *Journal of Divorce & Remarriage*, 54(3), 177-196.
- Theunis, L., Eeckhaut, M. C., & Van Bavel, J. (2018). Who leaves the joint home after separation? The role of partners' absolute and relative education in Belgium. *European Sociological Review*, 34(6), 659-674.
- van der Heijden, H., Dol, K., & Oxley, M. (2011). Western European housing systems and the impact of the international financial crisis. *Journal of Housing and the Built Environment*, 26(3), 295-313. <https://doi.org/10.1007/s10901-011-9230-0>

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