

## Suicidal Ideation and Attempt among Immigrants in Europe: A Literature Review

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### Abstract

The aim of this literature review was to provide an overview of suicidal ideation and suicide attempt among immigrants in Europe. Psyc info, Psyc articles and PubMed were used. Prisma flowchart describes selection of articles based on the inclusion and exclusion criteria. Seventeen articles were included in the study. Predictors of suicidal ideation and suicide attempt among immigrants in Europe are family conflict, health problems, substance abuse, low educational level and being adopted by a host inhabitant family, financial disadvantages. Female immigrants and second-generation immigrants appeared to be at higher risk than male immigrants with regard to suicidal ideation and suicide attempt.

**Keywords:** Suicide ideation; Suicide attempt; Immigrants; Migration; Europe; Risk factors

### Introduction

Suicide is one of the leading causes of death globally. In fact, according to world health organization [1], it is the second leading cause of death (following traffic accidents) among young adults aging between 15 and 29 in 2012. Furthermore, 800,000 commit suicide annually. Being one of the leading causes of death, suicide results economic and societal burden to the families. What is of more concern is that being a family member or a close friend of a suicide attempter or suicide completer is a risk factor for suicide [2].

This is due to family members and close friends experiencing a wide range of grief reactions such as guilt, shock and anger. Indeed, research reveals that there is a link between family history of suicide and suicide attempt [3]. Thus for every completed suicide, suicidality increases among family members. This, in turn, acts as a burden to the family and society. Suicidal ideation must receive necessary attention from the practitioners and policy makers [4].

There are several risk factors of suicide such as gender, race, marital status, religion, alcohol or substance abuse, insomnia, chronic and life threatening illness, anxiety, panic attack, depression, schizophrenia, low-income and separation from intimate partner [5-7]. Some studies have found that immigration may act as a risk factor for suicide [8,9]. Other studies have suggested that immigration might act as a protective factor against suicide [10]. So, there are contradictions in the literatures whether immigration is risk or protective factor of suicide which indicate for further research. Furthermore, these contradictions may suggest that certain factors related to migration/immigration are predictors of suicide [11]. Thus, migration/immigration may be mediating factor. A number of studies attempted to look beyond migration as a risk factor for suicide. This literature review attempts to give an overview on suicidality among immigrants in Europe. However, findings of literature on suicidality among immigrants in other areas of the world are essential to start with. The following paragraphs will give an overview of suicidality among immigrants in other places than Europe.

Previous literature reviews drew the following conclusions and findings. In their review, Pan and Carpiano [12] reported that suicide rates among Asian American youths were higher than other ethnic groups. In a recent literature review, Pan and Carpiano [12] reviewed twenty-two articles on suicidality among young immigrants. The researchers found that Latinos living in the US reported more suicidal

ideation and attempts compared with Native Americans. However, this was not similar across all Latinos. The authors found that suicide attempt was lower among first-generation Latinos than among second-generation Latinos. Furthermore, it was revealed that US-born Hispanics showed higher suicidal behavior than Hispanic immigrants. These differences motivated researchers to look beyond migration as a prime factor for suicide among immigrants.

Examination of Mexican immigrants in the US revealed that higher levels of acculturative stress expressed by Mexican immigrants were associated with higher risk of experiencing suicidal ideation [9]. However, one study suggested that it might not necessarily be acculturation that plays the main role in young immigrant girls' suicidal behaviour [13]. Rather, it is the interaction with other factors such as relationship with parents that plays a role in suicidal behavior among immigrant girls. Such suggestion was confirmed by Lipsicas [14]. When they found that familial problems were the most frequently reported factor for suicidal behavior among immigrant women.

They examined other variables related to immigration that may act as mediators for suicide. For instance Zayas et al. [15] conducted a case study on a 35-year old Brazilian woman named Bianca to look at the relationship between trauma caused by immigration, substance abuse and suicide. Despite their interesting findings of the link between the three variables mentioned above, by no means were these findings generalizable. However, in line with the Zayas et al. [15] study, a review on immigrants from the Indian subcontinent found that family conflicts are associated with suicide among Indian female immigrants [16]. A more generalizable study examined duration of residence (in the foreign country) as a predictor of suicidality among ethnic minority immigrants [17]. As hypothesized, the longer the duration of residence, the less likely immigrants were to commit suicide. Other studies revealed that familial problems, psychiatric disorders, issues related to migration, socio demographic variables and barriers for

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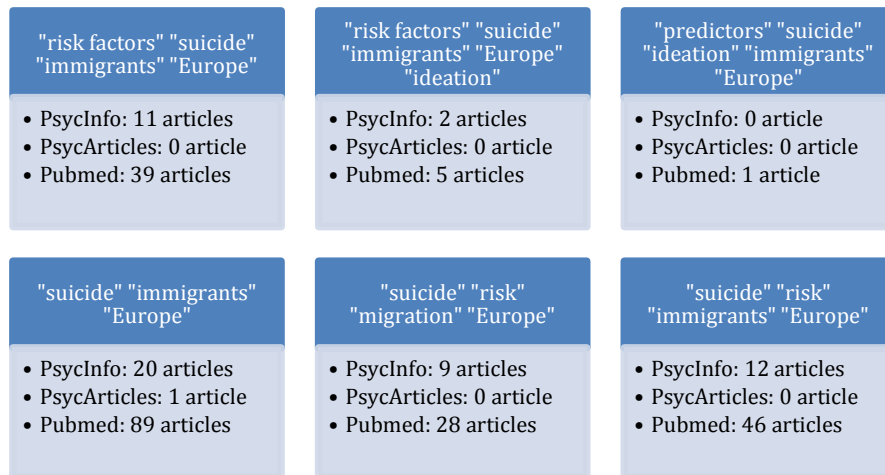


Figure 1: Keywords combinations for the purpose of generating study.

help-seeking are all factors that make immigrants at a much higher risk for suicide than their co-inhabitants [14]. Similarly immigrants have socioeconomically disadvantage compared to the host population [18].

This may contribute to higher suicidality. However, the authors could not find a general pattern in suicidality among immigrants in Europe compared to the host population. Other authors could not pin down what is it about migration that makes immigrants at a higher risk for suicide and suggested that suicide among young immigrants varies and depends on the country of settlement and the ethnicity of immigrants [12]. Such contradictions and lack of general pattern may be due to a number of varying factors. Somali immigrants in the US believed that suicidal trends did not exist in the Somali community [19]. Furthermore, participants had a difficult time speaking about depression, suicide and emotions openly.

This was mainly due to religion (suicide is forbidden as it is considered murder). Thus, for some ethnicity groups one may find low suicidal ideation and attempts but high completed suicides. One may suggest that there is extensive research on suicide. However, research on immigrants, refugees and minority ethnicity is still growing. Despite the fact that research on suicidality among immigrants emerged before the 1920s, it remains relatively limited. This is in terms of both quantities of studies as well as quality of study designs.

A number of studies have compared immigrant groups to host sample on suicide ideation and suicide attempts. However, little is known about differences in suicidal ideation among different immigrant groups. In fact, it is rarely that researchers differentiate between suicidal behaviors among the different immigrant groups [18]. Furthermore, little differentiation is made between immigrants and ethnic minorities. Thus, ethnic minorities are those who are born in the country of migration. One should not expect suicidality to be similar across all immigrant groups. More research is required to learn more about differences between different immigrant groups.

When examining methodological issues of research on suicide among immigrants, one notices that most studies are cohort [20,21]. Thus, they focus on prevalence and rates of completed suicides. This is also to say that such studies conclude (in most cases) that suicide rate among immigrants are higher than host population, however, reasons for this remain unknown. As much as cohort studies are good indicators from time to time, research on suicide among immigrants/

may need to move away from them in order to find out what it is about migration that makes individuals at a higher risk for suicide.

Finally, most of the available research is conducted in non-European countries. More specifically, a number of studies have been conducted in the US [12,9]. Thus, little is known about suicide among immigrants in Europe despite the increase in the number of immigrants in Europe in the recent years. Luxemburg showed the highest number of immigrants per 1000 in 2013 [22]. Sweden falls in fifth place with 12 immigrants in every 1000 inhabitants. More specifically, in 2013, 115.8 thousands immigrants settled in Sweden. Of which, 64.1% were from a non-member country.

For the purpose of this paper, the focus is on suicide ideation and suicide attempt. One believes that while studies on completed suicide are important to direct policy makers, studies on suicidal ideation and attempt are important because they may guide prevention programs. Furthermore, studies on completed suicide focus more on prevalence rather than causes behind the suicide.

The general aim of this literature review is to get an overview of suicidal ideation and suicide attempt trends among immigrants in Europe. More specifically, this literature review aims to find predictors of suicide among immigrants in Europe.

Much of the research that has been conducted on suicidality among immigrants was conducted in the USA. Therefore one of the aims of this review is to focus solely on studies that have been conducted in Europe. Furthermore, to our knowledge, no reviews have been written on suicidal ideation and suicide attempts among immigrants in Europe. Reviews that have been written examined completed suicide.

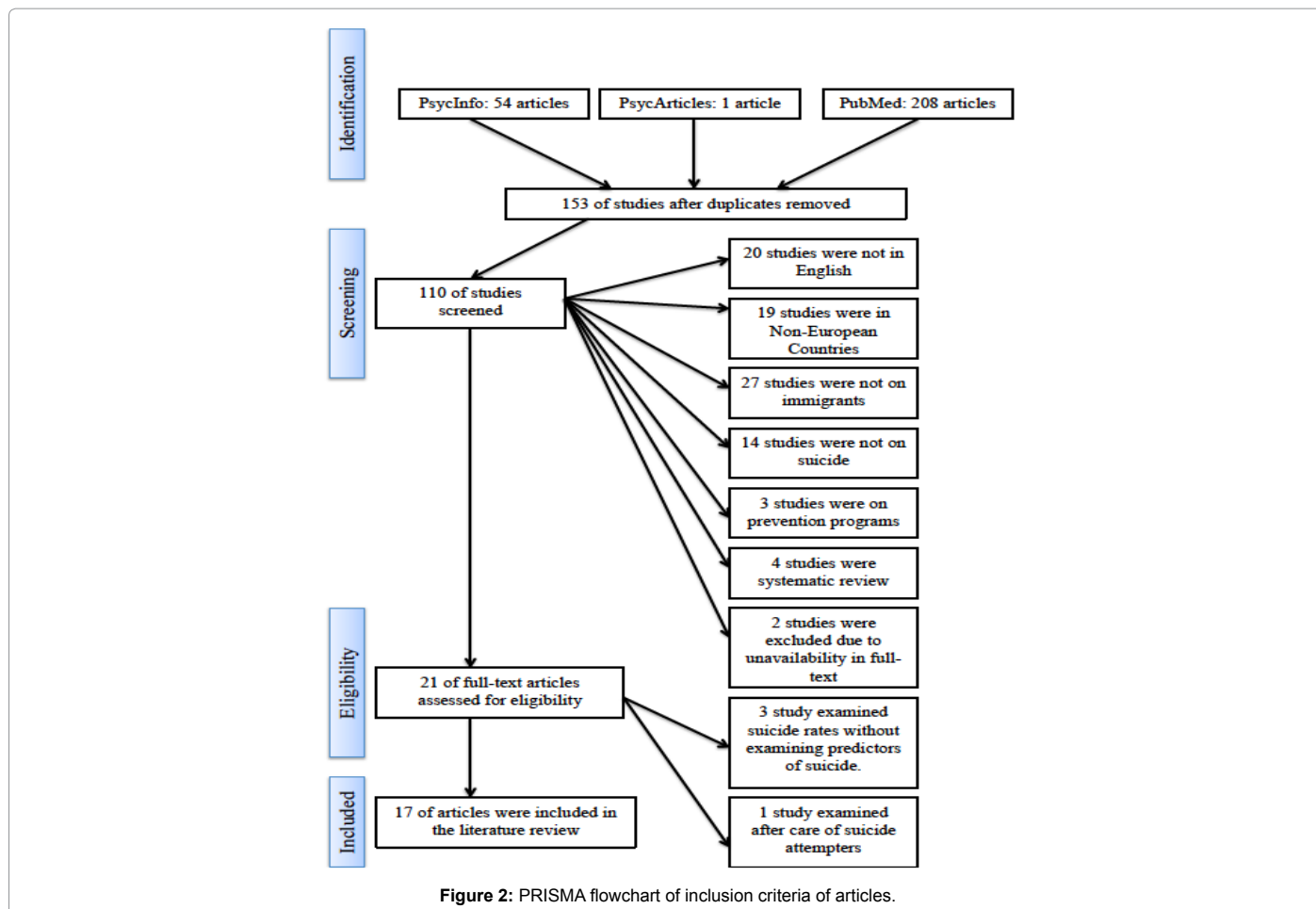
## Methods

Three databases were used for this literature review. These were Psyc info, Psyc articles and PubMed. Figure 1 includes the various keywords combinations that were used for the purpose of this literature review.

In total, 263 studies were generated from the search. The generated studies were examined to conclude whether they meet the inclusion criteria or not.

## Inclusion criteria

Several inclusion criteria were applied. Firstly, studies have to be



published in English. Studies that were conducted in European countries were included. Only studies that included at least one immigrant group were included.

### Exclusion criteria

Studies that were published in any other languages than English were excluded from the literature review. Studies that were conducted in non-European countries were also excluded. As shown in the Figure 2, 263 studies were generated. One hundred and fifty-three studies were removed due to being duplicates. Of the remaining 110 studies, twenty were removed because they were non-English studies. Additionally, nineteen studies were removed because they were conducted in a non-European country. Furthermore, twenty-seven studies were removed, as they were not on immigrants. For instance some of them examined suicide among prisoners. Additionally, fourteen were removed, as they were not on suicidality. Furthermore, three studies were prevention programs. Four studies were removed, as they were systematic reviews. Two additional studies were removed due to unavailability in full-text. Of the remaining twenty-one studies, three studies were removed, as they examined suicide rates without examining predictors of suicide. Finally, one study examined aftercare of suicide attempters. In total, seventeen articles were included in this literature review.

### Categorization of Findings

Studies included in this review were categorized according to the predicting factors of suicide. Predictors were categorized in one of the

following three categories: environmental predictors, genetic predictors and socio-economical predictors. It is worth mentioning that studies on suicide attempts and suicide ideation among immigrants in this literature review came from eight countries. These countries are Austria, Estonia, France, Italy, the Netherlands, Sweden, Switzerland and the United Kingdom.

## Results

### Studies overview

Of the seventeen studies, one study was conducted in Italy [23]. Furthermore, one study was conducted in Estonia [24]. One study was conducted in Austria [20]. Furthermore, one study was conducted in France [25] and another was conducted in Switzerland [26]. Three studies were conducted in the United Kingdom [4,27]. Four studies were conducted in the Netherlands [28-31]. Moreover, two studies were conducted in Sweden [21,32]. The remaining three studies collected data from several European countries [12,33,34]. Table 1 includes brief summaries of the studies that met the inclusion criteria.

### Environmental and social factors

Several environmental and social factors were reported to be predictors of suicide attempt among immigrants in Europe. The factors are categorized into subcategories below. Health related factors: A number of studies reported that health problems were predictors of suicide attempt or ideation among immigrants [5]. In particular,

| References              | Title                                                                                                                                     | Setting        | Sample                                                                                     | Age group                                    | Study design        | Measure variables                                                                                                                  | Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------|----------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Burke [5]               | Attempted suicide among Asian immigrants in Birmingham                                                                                    | United Kingdom | 68 suicide attempters                                                                      | Between the ages of 15 and 45                | Cohort Study        | Age, gender and reason of suicide                                                                                                  | <p>63% of the suicide attempters were married.</p> <p>Females were more likely to attempt suicide.</p> <p>The number of Asian suicide attempters was under-represented compared to natives.</p> <p>Attempters reported interpersonal dispute as a reason for suicide attempt.</p> <p>Health problems were also reported as a reason for suicide attempt.</p> <p>33% of the suicide attempters were diagnosed with a sort of psychiatric disorder.</p> <p>Young females aged between 15-25 were more likely to attempt suicide than males.</p>                                                                                                                                                                                                                                                                                                                                                                  |
| Burke [26]              | Attempted suicide among commonwealth immigrants in Birmingham                                                                             | United Kingdom | 118 self-poisoners commonwealth immigrants                                                 | Between the ages of 15 and 45                | Cohort Study        | Age, gender, method of suicide, reason of suicide                                                                                  | <p>Dispute with a lover or relative was a commonly reported reason for the attempted suicide among females.</p> <p>Other reasons reported among females were obesity, pregnancy, physical health, examination failure, being robbed and death of a relative.</p> <p>Among males, reasons for the attempted suicide were health problems, financial issues, social isolation and hallucinations.</p> <p>Second generation male inter-country adoptees (immigrants) who are adopted by a Swedish household) had the highest incidence of suicide.</p>                                                                                                                                                                                                                                                                                                                                                            |
| Hjern and Allebeck [22] | Suicide in first- and second-generation immigrants in Sweden: a comparative study                                                         | Sweden         | 2381 suicide cases among parents and 1159 suicide cases among youths between 1990 and 1998 | Not reported                                 | Cohort Study        | Socio-economic status, residential location, Income.                                                                               | <p>Second generation immigrants had higher suicide rates than first generation immigrants.</p> <p>Finnish and Western immigrants had higher suicide rates in comparison with the native population.</p> <p>Middle Eastern immigrants had lower suicide rates in comparison with the native population in both generations.</p> <p>Second generation immigrants had higher suicide rates than natives.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Iliceto et al. [24]     | Suicide risk and psychopathology in immigrants: a multi-group.                                                                            | Italy          | 237 Italians and 234 immigrants                                                            | Mean age of Italians 29.63 and of immigrants | Correlational Study | Temperament, Hopelessness, Extraversion, Neuroticism, Psychoticism,                                                                | <p>Hopelessness, affective temperaments, negative self and other perception, introversion, neuroticism, psychoticism and irritable temperament were associated with suicide risk for both Italians and Immigrants.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Lamis et al. [24]       | confirmatory factor analysis                                                                                                              | --             | --                                                                                         | 30.14                                        | --                  | Attachment (quality of interpersonal relationships)                                                                                | <p>Hopelessness and introversion were associated with a perception of negative future expectations and negative mood.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Kosidou et al. [32]     | Immigration, transition into adulthood and social adversity in relation to psychological distress and suicide attempts among young adults | Sweden         | 10, 081 individuals aged between 18-29                                                     | 18-29 years of age                           | Correlational Study | Employment Status, Financial Strain, Age at becoming a parent, Housing Tenure, Psychological distress (GHQ-12) and suicide attempt | <p>Psychological distress and lifetime suicide attempt were twice as common among women.</p> <p>Psychological distress was more common in non-European second generation immigrants compared with native Swedes</p> <p>European first generation immigrant women were at 3 folds elevated risk of suicide attempts compare with native Swedes.</p> <p>No association between immigrant status and suicide attempts in men</p> <p>Financial strain was associated with an increased risk of suicide attempts in both sexes.</p>                                                                                                                                                                                                                                                                                                                                                                                 |
| Kölves et al. [25]      | Factors predicting suicide among Russians in Estonia in Comparison with Estonians: Case-control study                                     | Estonia        | 427 suicide cases (interviews relatives). 427 matched group.                               |                                              |                     | Everyday life, life event, substance use questionnaire.                                                                            | <p>Estonian and Russian suicide completers significantly differed in the mean age.</p> <p>Socio-demographic factors and life events did not significantly differ between the suicide completers from the two nationalities.</p> <p>When adjusting gender and age, Russian suicide completers were at a higher risk for substance abuse than Estonian suicide completers.</p> <p>Russian female completers had a higher risk for somatic illness.</p> <p>Both groups of suicide completers were more likely to be single and unemployed compared with the control group.</p> <p>Estonian suicide victims had a significantly higher risk of financial deterioration than participants of the control group.</p> <p>In general, substance abuse, socio-economical inactivity and family discord (in the last three months before suicide) were associated with suicide in both groups of suicide completers.</p> |

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|---------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------|--------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lipsicas et al. [33]      | Repetition of attempted suicide among immigrants in Europe                                                   | 8 centers in 7 European countries. Switzerland, Belgium, | 10574 local suicide attempts and 3032 immigrants                                                                 | Not reported. | Cohort study | Registered suicide attempt within 12 months. The number of days elapsed between index         | No significant difference between Western Europe immigrants and locals.<br>Eastern Europe immigrants were found to have one half the odds for repeating their attempt when compared with the locals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Kerkhof et al. [36,37]    |                                                                                                              | Israel, the Netherlands, Sweden, Estonia and Germany     | suicide attempts between 1989 and 2010                                                                           |               |              | attempt and the repeated attempt. Immigration status, sex, age and method of suicide attempt. | Non-European immigrants were less likely than locals to repeat their suicide attempts.<br>Females using harder methods had significantly higher odds for repetition of suicide attempt. Males showed opposite tendency.<br>Age was found to have significant effect on the odds for repetition on most analyses (as age increased, odds of repetition decreased).<br>There was no significant difference on timing of repeated suicide attempt between immigrants and locals.                                                                                                                                                                                                                                                                                          |
| Lipsicas et al. [34]      | Gender distribution of suicide attempts among immigrants in European Countries- an international perspective | 25 Participating centers in 20 countries                 | 58622 suicide attempts between 1989 and 2003                                                                     | Not reported  | Cohort study | Suicide attempt rates (SAR)                                                                   | Across all groups there was no significant difference in the gender ratio of suicide attempts.<br>Turkish immigrants had a significantly higher gender ratio than their hosts in Belgium, Sweden and Germany.<br>In host groups, females made 22 more suicide attempts per 100 000 than males. In immigrants groups, females made 46 more suicide attempts per 100 000 than males.<br>Russian immigrants had considerably lower gender ratio than other groups.<br>The average SARs was larger among non-European immigrants.                                                                                                                                                                                                                                          |
| Lipsicas et al. [36]      | Attempted suicide among immigrants in European countries: an international perspective                       | 11 European centers                                      | 27,048 persons including 4160 between 1989-2003                                                                  | Not reported  | Cohort study | Suicide attempt rates (SAR)                                                                   | 27 out of 56 of the studied immigrant groups had significantly higher SAR than the hosts. 25 had similar SAR as the hosts. Four immigrant groups had a significantly lower SAR.<br>Turks had a far higher SAR than those of their countrymen. Similar SAR were found in The Netherlands, Sweden, Estonia among persons born abroad and persons who carried the citizenship but were not born there.<br>In 14 out of 19 cases, higher SARs of immigrants positively correlated with higher completed suicide rates in their native countries.<br>Among Chileans, Iranians, Turks and Ukrainians, opposite patterns were observed.<br>The correlation between the SARs of foreign citizen and the completed-suicide rates in their native countries was not significant. |
| Neeleman and Wessely [27] | Ethnic minority suicide: a small area geographical study in south London                                     | United Kingdom                                           | 902008 inhabitants from 109 wards in South London. 329 suicides between 1991 and 1993                            | Not reported  | Cohort Study | Underprivileged area scores, age, suicide rates, ethnicity, immigrant density                 | Younger populations were found in areas of lower underprivileged scores.<br>Suicide rates were higher in wards with higher minority groups.<br>Lower suicide rates were found among immigrant inhabitants in areas with higher minority density.<br>Higher suicide rates were found among non-immigrants inhabitants in areas with higher minority density.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Termorshuizen et al. [31] | Psychosis and suicide risk by ethnic origin and history of migration in the Netherlands                      | The Netherlands                                          | 12580 patients diagnosed with non-affective psychotic disorders (NAPD) matched controls 244792 with no diagnosis | Not reported  | Cohort Study | History of migration, suicide, and NAPD                                                       | More non-dutch patients are diagnosed with NAPD (either first or second generation immigrants).<br>Schizophrenia is the main disorder among patients 60.1% of the patients are Turkish-Dutch. 65.1% are Moroccan-Dutch and 68.2% are Surinamese-Dutch.<br>Among patients with NAPD. Lower suicide rates were found among non-Dutch patients. Although the difference is non-significant.                                                                                                                                                                                                                                                                                                                                                                               |

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|------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------|---------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Van Bergen et al. [28] | "I felt so hurt and lonely": suicidal behavior in South Asian, Turkish and Moroccan women in the Netherlands                        | The Netherlands | 47 females who were Asian-Surinamese, Turkish, Moroccan or Dutch.                           | Between 18 and 40 years of age. | Case study          | Suicidal behavior                                                                                                                                                                | <p>60% of the participants reported suicide attempting mostly though overdosing.</p> <p>Five participants seriously had suicidal ideation but never attempted suicide.</p> <p>Five dominant themes were identified: Lack of autonomy. 7 women in total belonged to this category. Six of which are of Turkish origins. They are all among the first and in-between generations.</p> <p>A clash over strategic life choices. Eight Moroccan women belonged to this category. One was of Turkish origin. All of which are among second-generation immigrants.</p> <p>Lack of connectedness and affection. 19 participants belonged to this category. Most of them were Dutch.</p> <p>A sense of lacking in worthiness as a result of upbringing. Most participants belong to this category. Psychiatric illness leading to unbearable sufferings. Four women belong to this category.</p> <p>"Immigrant young women were enrolled in lower school types twice as often compared to Dutch young women" (p 521).</p> |
| Van Bergen et al. [29] | Suicidal behavior and ethnicity of young females in Rotterdam, the Netherlands: rates and risk factors                              | The Netherlands | 4527 female students.                                                                       | 14 to 16 year olds              | Correlational study | Life time prevalence of attempted suicide, stressful life events, family environment, sexual abuse, physical abuse, sociodemographic variables, educational level and ethnicity. | <p>19.2% of South Asian-Surinamese females attempted suicide.</p> <p>14.8% of the young Turkish females attempted suicide.</p> <p>9% of the Dutch young females attempted suicide.</p> <p>6.2% of the Moroccan young females attempted suicide.</p> <p>Lower educational level was associated with suicidal behavior among Dutch, Turkish and Moroccan women but not South Asian-Surinamese women.</p> <p>Physical abuse played a role in risk for attempted suicide among Turkish and Dutch youths.</p> <p>Sexual abuse played a role in risk for suicide attempt among Dutch and South Asian-Surinamese youths.</p> <p>Unsatisfactory with family environment positively correlated attempted suicide.</p> <p>Sociodemographics were not associated with suicidal behavior.</p> <p>Parental psychopathology and substance abuse contributed to suicidal behavior across all four ethnic groups.</p>                                                                                                            |
| Van Bergen et al. [30] | Suicidal ideation in ethnic minority and majority adolescents in Utrecht, the Netherlands                                           | The Netherlands | 249 adolescents                                                                             | Not reported                    | Correlational study | Prevalence of suicidal ideation, psychological well-being, loneliness, locus of control, depressed mood                                                                          | <p>Turkish adolescents reported experiencing more suicidal ideation.</p> <p>Psychological well-being significantly negatively correlated with suicidal ideation in minority adolescents than in the majority Dutch adolescents.</p> <p>Poor locus of control increased vulnerability to suicidal ideation in adolescents of Moroccan origin.</p> <p>Depressive symptoms was a risk factor for suicidal ideation among Turkish and Moroccan adolescents.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Van Leeuwen et al.     | The role of acculturation in suicidal ideation among second-generation immigrant adolescents in France                              | France          | 292 adolescents                                                                             | Mean age 17.2 years             | Correlational study | Suicidal ideation, acculturation orientations, ethnic identity, Parent and Peer attachment, Depression, personality disorder, substance use                                      | <p>Girls had suicide ideation significantly more frequently than boys.</p> <p>Life events and attachment to parents were significant predictors of suicide ideation among both girls and boys.</p> <p>Depressive symptoms significantly predicted suicide ideation positively among girls.</p> <p>Individualism positively predicted suicidal ideation among boys.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Voracek and Loibl [21] | Consistency of immigrant suicide rates in Austria with country-of-birth suicide rates: A role for genetic risk factors for suicide? | Austria         | 65,206 suicides between 1970-2006 in Austria. Out of which 1724 suicides were by immigrants | Not reported                    | Cohort study        | Suicide prevalence in Austria of 22 immigrant groups versus suicide prevalence of these immigrant groups homelands.                                                              | <p>Suicide prevalence of immigrants in Austria significantly corresponded to suicide prevalence in their homelands.</p> <p>68.6% of the Turkish suicide attempters were women. 31.4% of the Turkish suicide attempters were men.</p> <p>The difference between Turks and Swiss patients on suicide attempts were not significant.</p> <p>Relationship difficulties were associated with suicide attempt in both groups</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Table 1: Brief summaries of the studies that met the inclusion criteria.

studies reported that females who were immigrants and pregnant or suffered from obesity reported these as causes of their suicide attempts. Furthermore, substance abuse was also a predictor of suicide attempting among Russian immigrants in Estonia [35].

**Family environment:** Female immigrants in the Netherlands reported family problems as being the number one cause of their suicidality [31,36,37]. More specifically, interpersonal dispute, social isolation, lack of autonomy, clash over strategic life choices, lack of connectedness and affection between family members, lack of a sense of worthiness due to upbringing, unsatisfactory with family environment were all predictors of suicide attempting and ideation. Social isolation was reported among male immigrants in the United Kingdom [4]. Relationship difficulties were associated with suicidal ideation in Switzerland for both Turkish immigrants and for non-immigrants [26]. Death of a relative was reported by immigrant female suicide attempters in the United Kingdom as a cause of their attempt [4].

### Psychological factors

Depressive symptoms were related to suicidal ideation among female immigrants in France [25]. Similarly, depressive symptoms were risk factors for suicidal ideation among Turkish and Moroccan females in the Netherlands [31]. Furthermore, psychiatric illnesses were associated with suicidal ideation among immigrants in the Netherlands [37]. Hallucination was associated with suicidal attempt among male immigrants in the United Kingdom [4]. Psychological distress was more common among non-European immigrants in Sweden and was associated with suicide attempt [33].

**Area of residency:** Suicide rates were lower among immigrants when they were living in an area of high immigrant's density in the United Kingdom [28]. Other environmental and social factors: Being physically abused played a role in suicide attempt among Turkish and Dutch youths in the Netherlands [38]. Being sexually abused played a role in suicide attempt among Dutch and Asian youths in the Netherlands [36]. Robbery was reported by female immigrants in the United Kingdom as being a cause for their suicide attempt [4]. Being adopted by a Swedish family increased the risk of suicide attempting among the adoptees [21]. Turkish immigrants in Europe had a much higher suicide attempt rate than their countrymen [38]. Country of birth appears to play a role in the risk for suicide ideation and suicide attempting. In a multi-country study, 27 out of 56 immigrant groups in Europe had significantly higher suicide attempt rate than the host populations in the respective countries [39]. Another study found that there was no significant difference in suicide attempting between Western European immigrants and locals [40]. Furthermore, non-European immigrants were significantly less likely to repeat suicide attempt than European immigrants and hosts [40].

### Socio-economic factors

**Financial factors:** Several studies reported that financial issues increased the risk of suicide attempting or suicide ideation among immigrants. In the United Kingdom, males reported financial issues as a cause for their suicide attempt [4]. In Estonia, both immigrants and non-immigrants suicide attempters experienced higher financial deterioration than participants in the control group [36]. Similarly, in Sweden financial strains increased the risk of suicide attempt in both genders [33].

**Educational factors:** Immigrant females in the Netherlands were more likely to be put in schools of lower status and were more likely to have a lower educational level [37].

**Genetic factors:** Several studies reported that being a female immigrants is a risk factor for suicide attempt or suicide ideation [4,25,26]. Additionally, being a second-generation immigrant increased the likelihood of attempting suicide [21].

### Discussion

Suicidal behavior is one of the leading causes of injury mortality and morbidity. Information about suicide behavior is important for prevention and for researchers, practitioners and policy-makers [41]. The aim of the present literature review was to provide an overview on suicide attempt and suicide ideation among immigrants in Europe. More specifically, the review aimed to identify predictors of suicide attempt and suicide ideation among immigrants in Europe, considering present immigration crisis over Europe. Seventeen articles were included in the current review.

Several predictors were found for suicidal ideation and suicide attempt among immigrants in Europe. Many of the reported predictors were environmental and social factors, fewer were socio-economical and only a couple of predictors were genetic factors. Environmental and social factors that underlie suicidal ideation and suicide attempt among immigrants were health problems, substance abuse, family conflicts, depression, psychological distress, low educational levels, area of residency, physical and sexual abuse [4,28,30,32,35-37]. There is evidence on duration of immigration as a predictor of suicidality.

It is suggested that the longer immigrants reside in the US, the less likely they are to attempt suicide. Furthermore, being an immigrant adapted to a local family appears to be a risk factor for suicide attempt in Sweden [21]. Country of birth appeared to play a role in suicide attempt as well [38]. Second generation immigrants appear to be at a higher risk for suicide attempt than first generation immigrants [21]. These findings are in line with findings from non-European countries where second-generation Latinos where found to attempt suicide more than first-generation Latinos. Researchers suggested that it might be due to acculturative stress [9]. This raises the following questions: do second-generation immigrants experience higher levels of acculturative stress than first generation immigrants? Furthermore, how can it be that second-generation immigrants are experiencing more suicidal ideations and attempts while there is also evidence that the longer immigrants reside in the host country, the less suicidal they become? With regard to socio-economic factors, having financial issues appeared to be a predictor for suicidal attempt among male immigrants [4,33,35]. Also interpersonal-psychological theories can explain the fact [42].

In non-European countries, immigrants experiencing socioeconomical disadvantages were also reported higher suicide attempts [18]. However, financial strains were also found to be a risk factor for suicide attempt among non-immigrants as well [36]. Thus, whether financial disadvantage as a predictor of suicidality is exclusive to immigrants is yet to be concluded. There is a gender difference in suicidality among immigrants. Female immigrants appear to be at a much higher risk for suicide attempt and suicidal ideation than male immigrants [25]. This was found in studies conducted in non-European countries as well [14]. What is of more interest is that female immigrants across countries relate their suicidality to familial problems. In terms of family conflict, what appears to differ immigrants from non-immigrants is the type of family conflict. For instance, Dutch females reported lack of affection as a risk factor for suicidal ideation [33].

On the other hand, Turkish females reported conflict with parents over strategic life choices as a risk factor for suicide. From the above findings, two things may be suggested with regard to suicidal ideation

and suicide attempt among immigrants in Europe. Firstly, females are at a much higher risk for suicidal ideation and suicide attempt. Secondly, it is not immigration per se that makes an individual more vulnerable for suicidal ideation and suicide attempt. Rather, it is the post-immigration circumstances that make an individual at a higher risk for suicidal ideation and suicide attempt. Several of the factors mentioned above (such as family conflict, socio-economic disadvantage, lower educational level, psychological distress) are post-immigration factors [43].

## Limitations

Some major European immigrants groups are not included in literature and little is known about their migration experience in general. For instance, little is known about Arab immigrants in Europe. As far as one is concerned, studies conducted in the Netherlands usually include Turkish immigrants. Thus, this makes it difficult to generalize findings to other immigrant groups. Furthermore, some of the studies included focus on one gender type. A couple of studies had only female participants. This makes it difficult to draw conclusions about the other gender. Studies included are from eight European countries. Therefore, generalizability may be limited solely to these eight countries. Several studies use cohort study design. These may not give the depth of information required at this level in the literature. Furthermore, the rest of the studies use correlational study design. Thus, even though one is able to report associations between risk/protective factors and suicide, it is not possible to make conclusions regarding causality.

## Strengths

To one's knowledge, a literature review on suicidal ideation and suicide attempt among immigrants is unavailable. Three of the studies included in the current manuscript are European wide (one includes 20 European countries). These studies give a good overview of suicidal ideation and suicide attempt among immigrants in Europe. Most importantly, this literature review raises critical questions. Following are some of these questions

- How do first generation and second-generation immigrants differ in terms of suicidality?
- How is acculturation and acculturative stress experienced by first versus second-generation immigrants?
- What are protective factors of suicidal ideation and attempt among first and second-generation immigrants?
- How do immigrants with higher socio-economic status differ from immigrants with lower socio-economic status in terms of suicidality and acculturation?
- What are the risk factors of suicide among female immigrants versus male immigrants?

## Future Research

Studies suggest that immigrant females are at a much higher risk for suicide attempt. Future research needs to examine the causes that make immigrant females at a higher risk for suicide attempt. Furthermore, nationwide prevention programs for newly immigrated females should be considered. This is especially true for younger female immigrants. More researches are warranted to differentiate between risk factors for all inhabitants and risk factors of suicidal ideation and suicide attempt specific to immigrant and minority groups.

Future research should look into more specific immigrant groups rather than categorizing all immigrants under one category. One may

also suggest more qualitative research design studies for future research. This will give an insight on suicidality among immigrants. With such insight, it will be a step towards successful prevention program for immigrants.

## Conclusion

Research on suicidal ideation and attempt among immigrants is yet to get full attention. Focus should be on suicidality among female immigrants because they are most vulnerable in this context. Assisting immigrants so that they do not face stress due to low socio-economic status should be investigated and emphasized.

## Conflict of Interest Statement

Declared none.

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