Journal of Affective Disorders 287 (2021) 158–164

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

Who didn't consult the doctor? Understanding sociodemographic factors in relation to health care uptake before suicide

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ARTICLE INFO

Keywords:
Suicide
Health services
General practitioner
Primary care
Mental health care

ABSTRACT

Objective: This study aimed to establish differences between suicide decedents and a reference population across various health care settings.
Methods: This population-wide registration study combined death statistics, sociodemographic data and health care data from Statistics Netherlands. From 2010 to 2016, 12,015 suicide cases and a random reference group of 132,504 were included and assigned to one of the three health care settings; mental health (MH) care, primary care or no care. Logistic regression analyses were performed to determine differences in suicide risk factors across settings.
Results: In the 1–2 year period before suicide, 52% of the suicide decedents received MH care, 41% received GP care only and 7% received neither. Although sociodemographic factors showed significant differences across settings, the suicide risk profiles were not profoundly distinctive. A decreasing trend in suicide risk across health care settings became apparent for male gender, income level and being in a one-person or one-parent household, whereas for other factors (middle and older age, non-Western migration background, couples without children and people living in more sparsely populated areas), risk of suicide increased when health care setting became more specialized.
Limitations: Because of the data structure, 18 months of suicide decedents' health care use were compared with two years health care use of the reference group, which likely led to an underestimation of the reported differences.
Conclusion: Although there are differences between suicide decedents and a reference group across health care settings, these are not sufficiently distinctive to advocate for a setting-specific approach to suicide prevention.

1. Introduction

Worldwide, approximately 800,000 people die as a result of suicide and about 16 million people attempt suicide every year (World Health Organization, 2014). Suicide is a result of a complex interplay of various factors. Although suicide is difficult to predict, some sociodemographic risk factors have been established. Male gender, for example, is strongly associated with suicide and suicide is especially prevalent among middle aged and elderly men (Turecki and Brent, 2016; WHO, 2017). Suicide is further associated with relative poverty and deprivation (Rehkopf and Buka, 2006) and living alone (Näher et al., 2020; Shaw et al., 2021). A Dutch study reported additionally a lower suicide rate among people of non-Western origin compared to Dutch origin (Gilissen et al., 2013). Living in a rural environment is another sociodemographic risk factor for suicide (Helbich et al., 2017; Helbich et al., 2017; Hirsch and Cukrowicz, 2014). However, suicide is a complex phenomenon and rarely related to just one risk factor (World Health Organization, 2014).

Many suicide decedents were in contact with the health care system before their death (Andersen et al., 2000; Leavey et al., 2016; Luoma et al., 2002; Matthews et al., 1994; Pearson et al., 2009; Stene-Larsen and Reneflot, 2019; Windfuhr et al., 2016). Although approximately 90% was retrospectively diagnosed with at least one mental disorder

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https://doi.org/10.1016/j.jad.2021.03.014
Received 4 December 2020; Received in revised form 1 March 2021; Accepted 5 March 2021
Available online 13 March 2021

(Arsenault-Lapierre et al., 2004; Cavanagh et al., 2003), suicide decedents are more likely to receive care from a General Practitioner[1] (GP) than from a Mental Health[2] (MH) professional. A systematic review showed that overall, 31% had been in contact with a MH professional, while 83% had been in contact with a GP in the year prior to suicide (Stene-Larsen and Reneflot, 2019). In the Netherlands 40% of suicides were known in MH care in the year prior to their death (Huisman et al., 2013) and 50% received care from a GP (de Beurs et al., 2016). Receiving no GP care is also associated with an increased suicide risk (Windfuhr et al., 2016).

Receiving care is largely dependent on personal factors and attitudes. Reynders et al. (2014) showed that both attitudes and stigma influence the intention to seek help. Females generally hold more positive attitudes towards seeking help, and report less self-stigma and shame. Middle aged individuals (between 35 and 64 years old) reported less self-stigma and shame than younger individuals. A European-wide study reported that women, people aged below 65 (compared to older people), and those in higher income groups generally held more positive attitudes towards seeking help (Ten Have et al., 2010). Specifically for individuals with suicidality, barriers to seeking help and using mental health services include the lack of a perceived need for services, a preference for self-management, fear of hospitalization, and structural factors such as time, financial situation and limited availability (Bruffaerts et al., 2011; Hom et al., 2015).

While persons with a high suicide risk are preferably treated in MH care (Van Hemert et al., 2012), even in countries with well-developed mental health services only a minority generally is. The majority received care from a GP, and some received no care at all (Stene-Larsen and Reneflot, 2019; Windfuhr et al., 2016). It is unknown to what extent these various groups of health care consumers differ from one another with regard to their suicide risk profile. In the present study, including data of all suicide decedents in the period 2010–2016, we aimed to test to which degree sociodemographic risk factors for suicide differ across health care settings (MH care, GP care and no care). These insights may aid in the recognition of persons at risk of suicide in various health care settings and may contribute to creating suicide prevention strategies tailored to the particular health care environment. While the Netherlands' health care system prioritizes equal access to care by reducing financial barriers, it is likely that personal and attitudinal barriers remain. We hypothesize, therefore, that sociodemographic risk factors for suicide differ per health care setting. More specifically, because of their established association with suicide and lower help seeking behavior, males and older aged people (compared to middle aged), are expected to show stronger associations with suicide in no care setting. Since income is not expected to form a barrier to MH care uptake and lower income is associated with suicide, we expect a stronger association between low income and suicide in the MH care context.

2. Materials and methods

This population-wide registration study used data from Statistics Netherlands, which covers the health care use and death statistics for all citizens in the Netherlands. We identified three health care settings relevant to suicide prevention: MH care, GP care and no care, and compared suicide decedents from the period 2010 to 2016 with a reference group across these settings.

2.1. Health care use

In the Netherlands, health care use has been regulated by the Health Insurance Act since 1 January 2006. This Act provides compulsory health care insurance for Dutch citizens, covering medical care offered by GPs, hospitals and specialists (Kroneman et al., 2016). Health care expenditure is registered per person per calendar year and divided into various categories, such as primary health care, MH care, and other types of health care. Health care expenditure is included as a proxy for health care use. To determine whether people used a certain type of care, for instance GP care, we established whether any costs for consultations with a GP were registered.

2.2. Data selection and procedures

Suicides of people aged 18 and above in the years 2010 to 2016 were compared with a reference population consisting of a random 1% of the Dutch population aged 18 years and older at 31 December 2013. This yielded 12,288 suicide cases and 136,046 controls.

Because of the data structure, it was only possible to link health care use to the year of use and not to the exact date. To make sure that we included at least one full year of health care use, we combined health care use in the year of suicide and the year before. This means that for someone who died on 31 January 2010, 13 months of health care use were included, whereas for someone who died on 31 December 2010, 24 months of health care use were included. For the reference group, we included two full calendar years, thus 24 months, of health care uptake. To minimize potential bias, we verified that the dates of suicide were spread evenly over the year. Health care data and additional study data were matched to the death statistics using a unique individual number.

2.3. Study variables

The dependent variable, suicide, was identified using the international Classification of Diseases 10th revision (ICD-10) codes for external causes of death: intentional self-harm (X60–X84). We created the moderator variable 'health care setting' and assigned people to either one of the three possible categories: MH care, GP care or no care, based on their most specialized form of care. People with registrations for both MH and GP care, were thus assigned to the MH care category. People with no registrations for either GP or MH care in the included time span, were assigned to the 'no care' category. People for whom data on health care use were missing were excluded from the analyses.

Age, gender, nationality, household composition, income per household, and population density were added as independent variables. Age was converted into a categorical variable: young (18–39 years old), middle-aged (40–59 years old) and old (60 years or more). Nationality was converted into a categorical variable comprising three categories: Netherlands, non-Western and Western migration background based on the classification used by Statistics Netherlands. People who originated from the Netherlands were classified as Netherlands' nationality. People were classified as having a non-Western migration background if they or their parents originated from South America, Africa, Asia (excluding Indonesia and Japan) or Turkey. When they or their parents originated from any other country, people were classified as having a Western migration background. With regard to household type, we differentiated between couples without children, couples with children, one parent households, one-person households, and other (e.g. institutional). Income level referred to the gross income in Euros per year of the entire household that was registered by the tax authorities. In order to include a full year's income, we used income level of the year prior to suicide for suicide decedents. This variable was converted into a categorical variable based on quartiles ($\leq$ 31,882; 31,883–58,213; 58,214–92,437; $\geq$ 92,438). Population density was a predefined variable based upon the density of addresses. Although it consists of five categories (from very densely to not densely populated), it was treated as a continuous variable in the analyses.

2.4. Statistical analysis

Using descriptive techniques, we created a table with the

[1] GP = General Practitioner
[2] MH = Mental Health

percentages of suicide decedents and reference group and sociodemographic factors across the various health care settings. With suicide status as dependent variable, we used multiple logistic regression techniques to test the association of the independent variables and health care setting for suicide risk. The risk was estimated using Odds Ratios (ORs) with 95% confidence intervals (CIs). To test whether sociodemographic risk factors had a significantly different OR across health care settings, we created a second model. Here, health care setting was added as a moderator by creating interaction terms with the independent variables (one-by-one), while the model was adjusted for all other variables. The outcomes were then stratified by health care setting. All analyses were performed using SPSS version 25.0 software and the significance level was set at $P < .05$.

2.5. Ethical statement

According to the Medical Research Involving Human Subjects Act (WMO), ethical approval is not required for registration-based studies in the Netherlands using unidentifiable data.

2.6. Data availability statement

This study was based upon microdata of Statistics Netherlands. Statistics Netherlands collects data on each inhabitant of the Netherlands from various sources. Restrictions apply to the availability of these data, which were used under license for this study. Data are available at Statistics Netherlands microdata services (Statistics Netherlands, 2020) for authorized institutions on receiving permission.

3. Results

Between the years 2010 and 2016, there were on average 1755 suicides per year of people aged 18 years and older in the Netherlands, making a total of 12,288 suicides. After excluding people for whom complete health care data were missing, 12,015 (97.8%) suicide cases and 132,504 (97.4%) references remained. Half (51.6%) of the suicide decedents had used MH care in the 1–2 year period before death, considerably more than the reference group (9.1%). Further, 41.2% of the suicide decedents used GP care only (no MH care) and 7.1% received no care from GPs or MH professionals in the period before death, compared with 80.4% and 9.4%, respectively, in the reference group (see Table 1).

Table 2 shows the outcomes of the overall logistic regression model, testing the association of the independent variables, including health care setting, with suicide. The model is statistically significant ($X^2(15)=$ 17,908.75, $P < .001$) and has a Nagelkerke R^2 of 0.276. All the included variables were significantly associated with suicide, except for Western migration background compared to Netherlands' nationality. MH care setting had the strongest association with suicide [respectively OR, 11.1; 95% CI, 10.6–11.6 and OR, 10.3; 95% CI, 9.4–11.1 higher odds than people in the GP care or no care setting to die by suicide].

The model further shows that males [OR, 2.8; 95% CI, 2.7–3.0 compared to females], middle-aged and old people [respectively OR, 2.1; 95% CI, 2.0–2.2 and OR, 1.7; 95% CI, 1.6–1.8 compared with young age], all household composition other than living with spouse and children, as well as all income categories other than the highest quartile had an increased risk of suicide. People with a non-western migration background are less likely to die by suicide [OR, 0.5; 95% CI, 0.5–0.6] compared to people with a Netherlands' nationality. Finally, people

Table 1
Distribution of suicide decedents and reference population overall and by health care setting.

	Suicide decedents				Reference group			
	Total N (% of column)	No care % of the row	GP care % of the row	MH care % of the row	Total N (% of column)	No care % of the row	GP care % of the row	MH care % of the row
Total	12,015 (100)	7.1	41.2	51.6	132,504 (100)	10.4	80.4	9.1
Gender								
Male	8254 (68.7)	9.1	44.8	46.1	65,063 (49.1)	14.7	77.4	7.8
Female	3761 (31.3)	2.8	33.3	63.9	67,441 (50.9)	6.3	83.3	10.4
Age								
Young	2831 (23.6)	10.4	31.0	58.6	43,540 (32.9)	13.4	74.2	12.5
Middle	5617 (46.8)	7.5	37.3	55.3	48,278 (36.4)	11.0	79.1	9.9
Old	3567 (29.7)	4.1	55.6	40.4	40,686 (31.7)	6.7	88.7	4.6
Migration background[†]								
Netherlands nationality	9987 (83.7)	6.7	41.3	52.0	106,195 (80.1)	10.0	81.2	8.8
Western migration background	1215 (10.2)	8.0	42.2	49.8	12,499 (9.4)	13.7	77.0	9.3
Non-Western migration background	731 (6.1)	9.6	38.7	51.7	13,810 (10.4)	10.7	77.9	11.4
Household composition[‡]								
Couple with children	2458 (20.5)	7.8	44.4	47.8	49,809 (37.6)	11.0	80.6	8.4
Couple without children	2657 (22.1)	5.3	49.9	44.8	43,739 (33.0)	8.3	85.4	6.3
One-person household	5712 (47.5)	7.2	37.8	55.0	27,184 (20.5)	11.6	76.2	12.2
One parent household	748 (6.2)	7.0	36.8	56.3	8333 (6.3)	8.4	75.5	16.0
Other	440 (3.7)	13.9	23.0	63.2	3439 (2.6)	24.9	59.8	15.3
Income level								
First quartile	4700 (40.2)	6.9	37.9	55.3	31,191 (23.7)	10.3	77.6	12.1
Second quartile	3006 (25.7)	7.3	45.0	47.7	32,887 (24.9)	9.2	82.8	8.6
Third quartile	2254 (19.3)	6.4	42.8	50.8	33,639 (25.5)	10.1	81.6	8.3
Fourth quartile	1736 (14.8)	6.8	43.4	49.8	34,156 (25.9)	11.5	80.9	7.7
Population sparsity[§]								
Very high urban	2893 (24.6)	8.3	35.5	56.2	31,267 (23.8)	11.5	77.4	11.1
High urban	3560 (30.3)	7.0	39.6	53.5	40,488 (30.8)	10.4	79.8	9.9
Moderately urban	1929 (16.4)	6.3	43.6	50.1	21,995 (16.7)	9.7	82.1	8.2
Low urban	2363 (20.1)	6.9	45.2	48.0	27,177 (20.7)	9.9	82.7	7.3
Not urban	1024 (8.7)	6.6	49.2	44.2	10,467 (8.0)	10.3	82.4	7.3

Percentages may not add up to 100 because of rounding.
GP = General Practitioner, MH = Mental Health.
[†] missing 82 suicide cases.
[‡] missing 319 suicide cases and 631 from reference group.
[§] missing 246 suicide cases and 1110 from reference group.

Table 2
Sociodemographic factors associated with suicide resulting from multiple logistic regression analysis.

	Overall model (N = 144,519)		
	OR	95% CI for OR Lower - upper	
Health care setting (ref: MH care)			
GP care	0.090	0.086	0.094
No care	0.097	0.090	0.106
Gender (ref: female)			
Male	2.835	2.707	2.969
Age (ref: young)			
Middle	2.112	1.999	2.230
Old	1.722	1.616	1.835
Migration background (ref: Netherlands' nationality)[†]			
Western	0.979	0.911	1.052
Non-Western	0.505	0.461	0.552
Household composition (ref: couple with children)[‡]			
Couple without children	1.155	1.079	1.235
One-person household	3.100	2.902	3.311
One parent household	1.576	1.429	1.738
Other	1.556	1.365	1.772
Income level (ref: fourth quartile)			
First quartile	1.645	1.528	1.772
Second quartile	1.371	1.277	1.473
Third quartile	1.208	1.126	1.296
Population sparsity[§]	1.078	1.060	1.097
Constant	0.116		

OR = Odds Ratio, CI = Confidence Interval, MH = Mental Health, GP = General Practitioner.
[†] missing 82 suicide cases.
[‡] missing 319 suicide cases and 631 from reference group.
[§] missing 246 suicide cases and 1110 from reference group.

living in a sparsely populated region had a slightly higher risk of suicide [OR, 1.1; 95% CI, 1.1–1.1].

3.1. Differences between suicide and reference group across health care settings

We then created a logistic regression model in which we step-by-step added interaction terms between independent variables and the moderator health care setting. The results show that the health care setting modified the effect of all the independent variables on suicide risk, except for household type 'other' and third quartile income ($P >$ .05). Table 3 presents the ORs stratified per health care setting. The final columns show the P-values of the interaction terms of the respective variables and health care settings.

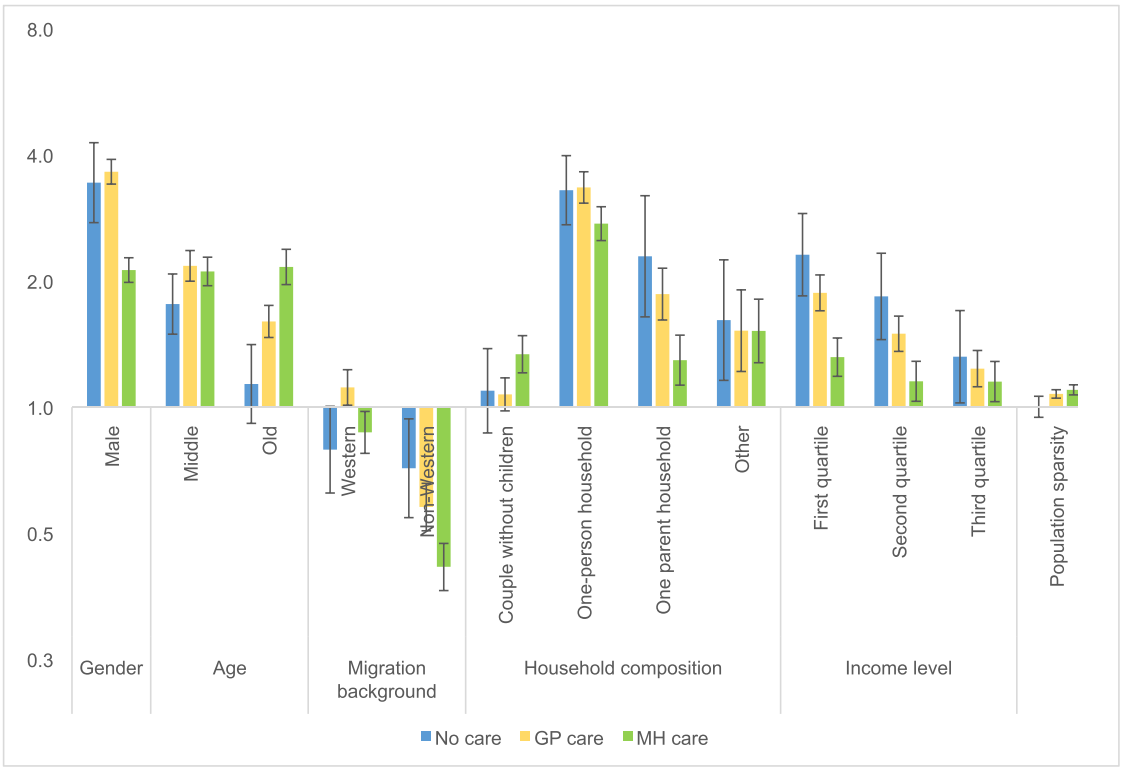
In the 'no care' setting, males [OR, 3.4 95% CI, 2.8–4.3], one-person household [OR, 3.3; 95% CI, 2.7–4.0 compared to living with partner and children], first quartile income [OR, 2.3; 95% CI, 1.8–2.9 compared to highest quartile] and one parent household [OR, 2.3; 95% CI, 1.6–3.2 compared to living with partner and children] were most strongly associated with suicide. In the GP care setting, males [OR, 3.7; 95% CI, 3.4–3.9] and one-person household [OR, 3.3; 95% CI, 3.1–3.6] were most strongly correlated with suicide, followed by middle age [OR, 2.2; 95% CI, 2.0–2.4 compared to young age], first quartile income [OR, 1.9; 95% CI, 1.7–2.1] and one parent household [OR, 1.9; 95% CI, 1.6–2.1]. In the MH care setting, one-person household [OR, 2.7; 95% CI, 2.5–3.0], males [OR, 2.1; 95% CI, 2.0–2.3], middle and old aged [OR, 2.1; 95% CI, 2.0–2.3 and OR, 2.2; 95% CI, 2.0–2.4 compared to young age] were the variables most strongly correlated with suicide.

To facilitate interpretation, a graphical representation of the ORs and 95% CIs derived from both models is shown in Fig. 1. The figure also illustrates that even though male gender shows a strong decrease in its association with suicide when health care setting becomes more specialized, it is still the most important risk factor for suicide overall. Other variables that showed a decreasing trend were one-person

Table 3
Sociodemographic factors associated with suicide in no care, GP care and MH care setting resulting from multiple logistic regression analyses with health care setting as moderator; the final column presents the P-value corresponding to the interaction term.

	No care (n = **14,685**)			GP care (n = **111,524**)			MH care (n = 18,310)			Difference between health care settings (P-value of interaction term)		
	OR	95% CI for OR Lower - Upper		OR	95% CI for OR Lower Upper		OR	95% CI for OR Lower - Upper		no vs GP care	GP vs MH care	no vs MH care
Gender (ref: female)												
Male	3.436	2.758	4.280	3.648	3.409	3.905	2.125	1.986	2.274	.609	.000*	.000*
Age (ref: young)												
Middle	1.763	1.494	2.080	2.175	1.999	2.366	2.109	1.950	2.281	.027***	.601	.055
Old	1.136	0.915	1.411	1.602	1.467	1.750	2.162	1.962	2.382	.004**	.000*	.000*
Migration background (ref: Netherlands' nationality)[†]												
Western	0.792	0.624	1.005	1.115	1.011	1.229	0.871	0.776	0.977	.009**	.001**	.479
Non-Western	0.715	0.545	0.938	0.578	0.507	0.658	0.416	0.365	0.473	.162	.000*	.000*
Household composition (ref: couple with children)[‡]												
Couple without children	1.095	0.868	1.380	1.073	0.980	1.175	1.338	1.208	1.482	.873	.001**	.117
One-person household	3.296	2.726	3.986	3.347	3.070	3.648	2.743	2.499	3.010	.883	.001**	.081
One parent household	2.292	1.643	3.198	1.862	1.615	2.147	1.295	1.129	1.486	.259	.000*	.002**
Other	1.614	1.159	2.248	1.523	1.217	1.906	1.521	1.277	1.811	.773	.993	.752
Income level (ref: fourth quartile)												
First quartile	2.312	1.844	2.900	1.875	1.699	2.069	1.317	1.185	1.463	.087	.002**	.000*
Second quartile	1.839	1.450	2.331	1.498	1.359	1.650	1.153	1.033	1.287	.113	.000*	.000*
Third quartile	1.320	1.024	1.701	1.236	1.119	1.366	1.151	1.031	1.286	.637	.348	.333
Population sparsity[§]	1.002	0.946	1.062	1.076	1.051	1.101	1.100	1.070	1.131	.025***	.215	.004**

GP = General Practitioner, MH = Mental Health, OR = Odds Ratio, CI = Confidence Interval.
[†] missing 82 suicide cases.
[‡] missing 319 suicide cases and 631 from reference group.
[§] missing 246 suicide cases and 1110 from reference group.
[*] significant at level <0.001.
[**] significant at level <0.01.
[***] significant at level <0.05.



GP = General Practitioner, MH = Mental Health, OR = Odds Ratio, CI = Confidence Interval

Fig. 1. Sociodemographic factors associated with suicide resulting from multiple logistic regression analyses per health care setting (in ORs and 95% CIs).

household, one-parent household and all income quartiles (ORs closer to 1), whereas middle aged, older age, couple without children, population sparsity and non-Western migration background showed an increasing trend (OR more divergent from 1). The associated between Western migration background and suicide risk was somewhat inconclusive across health care settings.

4. Discussion

This population-wide registration study focused on the characteristics of all people who died by suicide between 2010 and 2016 in the Netherlands. The results revealed that even though many sociodemographic risk factors for suicide differed significantly between health care settings, confirming our hypothesis, differences were quite small and not sufficiently distinctive to indicate a need for deviating suicide prevention strategies. Two important risk groups for suicide, middle and old aged people, often received MH care prior to their death, indicated by an increasing association across settings. Similarly, people from Dutch origin, couples without children and those from more sparsely populated areas, also showed a stronger association with suicide in the MH care setting. Other factors showed a decreasing trend, such as male gender, lower income levels and being in a one-person or one-parent household, indicating that they less likely received care before their death.

This study further showed that despite relatively good access to MH care in the Netherlands, there were still many people in need who were not receiving such care. Approximately half of the suicide decedents received MH care in the 1–2 year period prior to suicide, compared to one out of ten in the reference population. Previous studies have reported MH care rates in the year of suicide of 42% in the Netherlands (Huisman et al., 2013) and 30–32% elsewhere (Luoma et al., 2002; Stene-Larsen and Reneflot, 2019). Possible reasons why not a higher proportion of suicide decedents used MH care before death may include their perceived a lack of need for services, preference for self-management and fear of hospitalization (Hom et al., 2015). GP utilization rates for the reference group seem twice as high as for the suicide group, however, these rates should be considered in the context of the Netherlands health care system, in which GPs function as gatekeepers to MH care (Kroneman et al., 2016), indicating that the majority of suicide decedents additionally received GP care. The results showed that in addition to the 52% of suicide decedents who received MH care, four out of ten received GP care only. Hence, a large majority (93%) received some type of care in the 1–2 year period before suicide, providing opportunities for intervention. These findings highlight the importance of recognizing suicide risk in primary care; a crucial first step for prevention. Enhancing GP's suicide exploration will improve the recognition of persons at risk for suicide (Elzinga et al., 2019), for whom then appropriate treatment can be sought, for instance in MH care.

Although MH care is the recommended setting for persons with an elevated suicide risk (National Institute for Health and Care Excellence (NICE), 2018; Van Hemert et al., 2012), receiving MH care is no guarantee that suicide will be prevented. Here, too, suicide remains difficult to predict. In addition, suicide prevention guidelines are not always followed by professionals. Levels of implemented suicide prevention policies and practices vary significantly across MH care institutions (De Beurs et al., 2016; Mokkenstorm et al., 2018). Improving this may help further reduce the number of suicides (Kapur et al., 2016; While et al., 2012).

This study had some limitations. First, because of the data structure it was not possible to specify health care use to the exact date of use but only to the year, hence a period of 1–2 years before death was selected as time frame. For the same reason, we could not compare data for an average 18 months for the reference group, and instead took two full year of health care data for this group. This likely overestimated their use of health care compared to the average 18 months of health care used by suicide decedents. In turn, this may have led to an underestimation of the effects of sociodemographic factors on suicide risk. In addition, comparing the present findings on health care use by suicide

decedents with other studies is difficult, since these often include a strict timeframe. The lack of specificity is unfortunate because the closer to the moment of suicide the more significant changes in primary health care uptake become apparent (Schou Pedersen et al., 2019). Although, a Danish study reported that diagnoses and medications measured four years before suicide had more predictive value than diagnoses and medications measured six months before suicide (Gradus et al., 2020). Nevertheless, by studying differences between suicide decedents and a reference group across various health care settings, we brought a unique research focus, partly circumventing this limitation.

Using data from Statistics Netherlands ensured that we had a large sample of reliable data. However, this too has some limitations. Data on health care expenditures offer no in-depth understanding of health care use. The reasons why patients consult health care professionals remains unknown. This is unfortunate, especially with regard to primary care use, because patients are likely to consult on issues unrelated to their MH. Compared to other relevant studies in this field, this study used more recent data and included a larger number of suicides, namely all adult suicides between 2010 and 2016, more than 12,000 suicides in total, thereby adding to the reliability and validity of the reported findings. Another strength of the study is that it covers both contact with primary and MH care, enabling us to observe the large discrepancy in contact rates between these services. This suggests there is potential to increase the identification of patients at risk of suicide in primary care and provide adequate follow-up in MH care.

This study found that a large majority of suicide decedents received care in the 1–2 year before their suicide; more than half of the suicide decedents received MH care and about four out of ten received GP care only. This offers major starting points for prevention and highlights the importance of proactive suicide exploration to identify individuals at risk. Although sociodemographic risk factors were found to differ between health care settings, the suicide risk profile was not sufficiently divergent to adopt a setting specific approach to suicide prevention.

5. Contributors

EE, DB, AB and RG designed the study. GB created the dataset, EE analysed the data, and GB and AH checked the analyses. EE drafted the manuscript; all authors critically read and revised the manuscript and read and approved the final manuscript.

Role of the Funding Source

This study was funded by the Dutch Ministry of Health, grant number 326961, 2017. The funders had no role in study design, data analysis, or preparation of the manuscript.

Declaration of Competing Interest

The authors declare no conflict of interest.

Acknowledgements

We would like to thank Adriaan W. Hoogendoorn for his help with the analyses.

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