



Original research article

Impact of noncommunicable disease conditions and physical burden on intent to leave midwifery in Hungary

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Abstract

The aims of our study were to explore the burden of noncommunicable diseases and the physical demands of the job and their impact on intent to leave midwifery. A cross-sectional, correlational study was conducted among 231 midwives in hospital-based midwifery units in Hungary. Spearman rank correlation coefficients, Mann–Whitney test and Linear regression were performed for statistical analysis. Prevalence of noncommunicable diseases was over 30% for the top five diseases. Varicose veins and musculoskeletal problems were dominant symptoms. Smoking and alcohol consumption (often vs. sometimes) reached greater proportions (18.2% vs 12.6% smoking; 0.4% vs. 49.4% alcohol). Aspects of work-related physical burden were positively associated with intent to leave. Physical burden and noncommunicable diseases explained 26.2% of variance in staff turnover intentions, with diabetes making the biggest contribution. Physical burden and noncommunicable diseases explained over one-fourth of the variance in midwives' intent to leave the profession. Interventions aimed at reducing loss of midwives should address the physical burden of work as well as the impact of chronic symptoms developed as a consequence of high workloads.

Keywords: Health behaviours; Intent to leave; Midwives; Noncommunicable diseases; Physical burden

Introduction

As the shortage of midwives continues to grow, the health of midwifery personnel has become a global concern for many health systems. However, research on the health of midwives has focused predominantly on the impact of work-related, psychosocial factors and less attention has been paid to the role of physical burden and noncommunicable diseases. As the midwifery workforce ages and work-related stress increases, obesity is also on the rise. A comprehensive study implemented in Australia, New Zealand and the United Kingdom found that about 62% of midwives exceeded the healthy weight limit and were also above that of the general population (Bogossian et al., 2012). The same authors observed that those working part-time jobs had a lower risk of developing obesity. Peplonska et al. (2015) connected obesity in midwives with repetitive night-shift duty (8 or more nights per month), BMI being over 30 kg/m². Whether being overweight is specific to midwifery or is part of the general trend has been answered by Ross et

al. (2019). In a recent paper they reported that more than half of their nursing sample was either overweight or obese. The problem with obesity is that it puts a strain on the musculoskeletal system and promotes other ill health conditions such as diabetes. Perry et al. (2018) noted that midwives whose physical activity levels fall are often at high risk of developing noncommunicable diseases. Noncommunicable or psychosomatic diseases may also be the result of high and persistent work-related stress and burnout (Hunter et al., 2019). Burnout is known to cause psychosomatic diseases and vice versa (Suleiman-Martos et al., 2020). However, the research places more emphasis on the role of the psychological/mental coping capacity of midwives and focuses less on their noncommunicable health conditions (Suleiman-Martos et al., 2020). Hunter et al. (2019) for example placed combined burnout levels of midwives in the UK at 67% but, among other factors, Perry et al. (2017) linked burnout to the presence of a personal disability. Disability however can be a serious concern that may promote an early exit from the midwifery profession. For example, Pierce et al. (2017) found that midwives who developed

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severe urinary incontinence on the job were very likely to leave midwifery within the next 12 months. Such urinary symptoms may evolve because of limiting fluid intake and delaying voiding at work, behaviours that arise due to the wrong organizational culture and workforce management (Pierce et al., 2019a, b). Pierce et al. (2019b) confirmed that about 47% of midwives had experienced urinary problems during and related to work. Other health conditions, such as respiratory symptoms, were also seen as reasons for leaving midwifery (Perry et al., 2016). Perry et al. (2016) also reported that 22% of midwives had intentions to leave the profession in the 12 months following their study. The exit rate was even higher for Stoll and Gallagher (2019) who placed that figure at around 35%. When a shorter timeframe was considered (next 6 months), the rate to leave midwifery increased to an alarming 50% (Harvie et al., 2019). Lower staff levels and increased workloads as well as reduced hardiness may also contribute to the decision to leave (Cramer and Hunter, 2019; Eaves and Payne, 2019).

In summary, research identified higher rates of intent to leave the midwifery profession across various health systems. While individual decisions behind the intent to leave midwifery may vary on a large scale, work-related burnout appears a common cause. However, burnout can lead to psychosomatic symptoms that develop over time into noncommunicable diseases. Being overweight and obese, also signs of burnout, have been described with increasing prevalence for midwives. Urinary incontinence, another work-related health condition, was also seen as a predictor of intent to leave. Breathing problems were also cited as being the reason to leave the midwifery profession. Authors argue that the bulk of the research focuses on the psychology of midwives (Kheirkhah et al., 2018), but there is also a valid need to combine physical aspects of midwives' work as well as noncommunicable diseases in models that predict the intent of midwives to leave their profession (Bernal et al., 2015). Therefore, the aim of the current research was to assess the prevalence of noncommunicable health conditions experienced by midwives, as well as to predict their intent to leave midwifery as a function of physical burden, burden of noncommunicable diseases and selected health behaviours.

Materials and methods

The current research utilized a cross-sectional, exploratory, correlational research design. The study was implemented in thirteen major, regional hospitals across Hungary starting from January to mid-May 2016. Hospitals were chosen to geographically cover the country and represent all potential midwifery units. Of the total number of midwives in practice, a sampling frame of 500 midwives were randomly selected using unit level employment data. Out of the frame we approached 390 midwives via midwifery unit leaders to respond to a set of questionnaires distributed at work. All participants were asked to fill out a paper-based survey potentially on the day of duty or within the next 72 hours from contact. Participants were asked not to communicate or share responses with each other, and they were to mail the survey back in a prepaid envelope to the principal investigator upon completion. Participation in the research was voluntary and responses were anonymized. Institutional Review Board consent related to ethical considerations for each site had been obtained prior to approaching research subjects (40/2015/KK; PTE13648/2016; 0/426-1/2015; 1101-28/2015; A-18-49/2015; 1299/2015). Responses were placed in sealed envelopes and mailed to researchers. A total of 370 mails were received, of which 231 had been com-

pleted in full and were eligible for data analysis. There were no statistical approaches used to handle missing data in this research. Incomplete questionnaires were excluded from further analysis.

Survey items

As for noncommunicable disease conditions, we listed a number of common diseases and asked midwives to indicate by yes/no the presence or absence of such conditions (multiple responses accepted). Health behaviours including smoking, drinking alcohol, taking sedatives and sleeping aids were recorded on a 3-point Likert scale (often, sometimes, not at all).

Intent to leave midwifery was assessed by 'Have you tried to look for a new job in the past 12 months?' (1 = did not think of it, 4 = took actual steps). Burden of workload was measured by asking respondents 'How physically demanding was your last 3 months at work?' (1 = not at all, 5 = extremely). Additional items were adapted from research conducted by Gebrin  et al. (2017; 2019). Items were rated by respondents on a 5-point Likert scale ranging from '1 = absolutely not' to '5 = very much'. Items included: 'How demanding is the weekend shift?'; 'How demanding is it to work overtime?'; 'How concerning is that you acquire diseases in your work?'; 'How physically demanding/draining is your work?'; 'How demanding is the fast pace of work?'; 'How concerning is it that your work puts your health and safety at risk?'; and 'How physically demanding has your work been in the past 3 months?' Survey items as a summative scale showed a reliability, measured as Cronbach's alfa, of 0.82 in this research.

Sample

A nationally representative number of hospital midwifery units were selected. Unit managers were approached and asked to randomly distribute survey tools to midwifery staff on the day of duty. Survey tools were anonymized and participation was voluntary. Other than being employed at least for one year before the study, no specific exclusion criteria were used. Surveys were collected and returned to nurse managers in sealed, prepaid envelopes, and mailed to researchers.

A priori sample size estimation for linear regression with 18 independents, considering medium effect size and 20% type II statistical error (statistical power at 0.8), and level of significance being 5%, a total number of 150 subjects was required (G*Power, 2020). The final sample of 231 midwives satisfied the sampling size demand for statistical analyses.

Statistical analyses

To record data, the EvaSys electronic system was used (VSL, 2020). Actual analyses were done by SPSS version 25.0. Level of significance was set at 5%. Data normality was checked by one-sample Kolmogorov-Smirnov tests. Descriptive statistical analysis was performed to describe sample characteristics. Spearman correlation coefficients were determined to assess relationships across variables. Mann-Whitney tests were employed to probe for differences. Finally, linear regression was used to predict intent to leave in the past 12 months. To remove regression outliers biasing estimation, subjects whose standardized residuals had been greater than -2.0 and less than 2.0 were selected for analysis. Binary variables were dummy coded for the regression analysis.

Results

The average age of midwives in our final sample was 39.9 (SD 10.1), the youngest being 21, the oldest 62 years old. They had

been working for 20.0 years (SD 11.5) in the healthcare system, almost all of this period in hospitals (19.0 years average, SD 11.4). Respondents indicated they had worked for the same employer for 15.7 years (SD 12.1) on average which signalled very limited staff mobility and fluctuation. Of our sample, 11.4% reported to be in a leadership position, and 12.9% said they had a part-time job outside their regular midwifery practice. When asking for the number of shifts attended, 19.7% said they worked in one shift (8 hours) during the daytime, 78.2% worked in 12-hour shifts during day and night, and 2.1% in 3 shifts. While men have penetrated the nursing profession in the past decades, our current sample consisted of only women. Midwives, on a scale from 1 to 5 (1 = not at all, 5 = extremely) reported their work being physically demanding in the past 3 months 3.47 (SD 0.69) points on average.

The prevalence of chronic conditions is displayed in Table 1. While participants reported a variety of health conditions, the top five noncommunicable (chronic) conditions were varicose veins, musculoskeletal and cardiovascular diseases, allergies, and migraines. However, the greatest part of the disease burden reported by midwives was attributed to varicose veins and musculoskeletal problems.

Table 1. Most prevalent chronic conditions

Type of chronic disease	Prevalence N = 231 N (%)
Varicose veins	100 (43.5)
Musculoskeletal	70 (30.7)
Cardiovascular	61 (26.6)
Allergies	64 (28.1)
Migraine	46 (20.1)
Gastrointestinal	24 (10.6)
Endocrine	25 (11.0)
Respiratory	23 (10.1)
Gynaecological	20 (8.7)
Diabetes	11 (4.8)
Neurological	14 (6.1)
Skin	12 (5.2)
Mental	10 (4.3)
Urinary	9 (3.9)
Blood	8 (3.5)
Cancer	5 (2.2)

As for individual health behaviours, Table 2 shows four types of substances midwives may use. Of the four, smoking was the most prevalent, followed by alcohol and tranquilizers.

Table 2. Health behaviours of midwives

Type of behaviour	Frequency			
	Often N (%)	Sometimes N (%)	Not at all N (%)	Total (N = 231)
Sedative	3 (1.3)	16 (6.9)	210 (90.9)	229 (99.1%)
Sleeping aid	0	9 (3.9)	221 (95.7)	230 (99.5%)
Smoking	42 (18.2)	29 (12.6)	159 (68.8)	230 (99.5%)
Alcohol	1 (0.4)	114 (49.4)	113 (48.9)	228 (98.7%)

When frequency of the behaviour is considered, smoking was the dominant behaviour (18.2%) for those who 'often' engaged in this activity, whereas alcohol consumption emerged the most prevalent (49.4%) for those in the 'sometimes' category.

Table 3 shows the correlation coefficients between intent to leave midwifery in the preceding 12 months and indicators of physical hardship and health behaviours. All indicators except for acquiring diseases in one's midwifery practice were significantly, positively correlated with midwives' intent to leave the profession. That is, the greater respondents felt their job was physically demanding, the more likely they sought a new employment outside midwifery. The longer midwives had worked in midwifery, the more chronic symptoms they reported ($r = 0.16$, $p = 0.49$). However, length of employment was unrelated to searching for a new job. Concern over acquiring diseases during one's work was also unrelated to the intent to leave. Taking sedatives was negatively linked to intent to leave; the more midwives took such medications, the less they were thinking about looking for another job.

We tested the difference in intent to leave midwifery by level of various noncommunicable diseases. Of all conditions tested, we found significant differences for three health problems. Outcomes of the analysis are presented in Table 4. Subjects who had diabetes, who reported frequent migraines and who suffered from neurological diseases reported significantly more attempts to find new work over the past 12 months.

Finally, we built a linear regression model to predict intent to leave midwifery in the past 12 months (Table 5). For independent predictors we almost exclusively selected variables that reflected the burden of physical symptoms on midwives. The reason was to develop a model without psychological factors to enable us to assess the contribution of the physical burden on the intent to leave the midwifery profession. The final model was significant ($F = 3.94$, $p < 0.001$), the model $R^2 = 0.262$, that is, the model explained 26.2% of the variance in intent to leave. In terms of independent variables in the model, physical demand, health and safety risk, taking sedatives and having diabetes emerged as significant. Standardized (beta) coefficients inform about the relative contribution of each variable; physical demand made the largest contribution to intent to leave, followed by diabetes, taking sedatives and concern about health risk. Unstandardized coefficients show how a unit change in the independent variable induces a unit change in the dependent. In that sense, having diabetes made the strongest impact, it increased the intent to seek a new job by 0.5 points. Each increase in the frequency of taking sedatives decreased the intent to leave by 0.27 points, while each increase in physical demand and concern over health risk on the job increased intent to exit midwifery (by 0.1 and 0.08 points, respectively).

Table 3. Correlations between intent to leave in the past 12 months and physical stress/health

	Intent to leave in the past 12 months	How demanding is the weekend shift?	How demanding is it to work overtime?	How concerning is it that you acquire diseases in your work?	How physically demanding/draining is your work?	How demanding is the fast pace of work?	How concerning is it that your work puts your health and safety at risk?	How physically demanding has your work been in the past 3 months?	Do you take sedatives?
Intent to leave in the past 12 months	1.000	0.118*	0.152*	0.111	0.320**	0.123*	0.275**	0.221**	-0.189**

* Correlation is significant at the 0.05 level (1-tailed). ** Correlation is significant at the 0.01 level (1-tailed).

Table 4. Differences in intent to leave in the past 12 months in relation to having diabetes, migraines and neurological diseases*

		N	Mean rank	Sum of ranks	Z	Sig. (2-tailed)
Diabetes	No	214	69.64	766.00	-2.572	0.010
	Yes	11	115.23	24 659.00		
Migraine	No	180	92.38	4 157.00	-2.697	0.007
	Yes	45	118.16	21 268.00		
Neurological disease	No	212	83.25	1 165.50	-2.030	0.042
	Yes	14	115.50	24 485.50		

* Mann-Whitney tests

Table 5. Linear regression coefficients (dep. var. = intent to leave in past 12 months)

	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
Constant	1.010	0.380		2.657	0.009
How demanding is the weekend shift?	-0.002	0.026	-0.006	-0.085	0.933
How demanding is overtime?	0.009	0.022	0.030	0.392	0.696
How concerning is it that you acquire diseases in your work?	-0.007	0.036	-0.015	-0.197	0.844
How physically demanding/draining is your work?	0.106	0.041	0.208	2.566	0.011
How concerning is it that your work puts your health/safety at risk?	0.081	0.038	0.155	2.136	0.034
How demanding is the fast pace of work?	-0.033	0.038	-0.068	-0.863	0.389
Do you take sedatives?	-0.274	0.111	-0.170	-2.468	0.015
Do you have any neurological disease?	-0.036	0.161	-0.016	-0.225	0.822
Do you suffer from migraines?	-0.101	0.091	-0.078	-1.105	0.271
Do you drink alcohol?	0.121	0.070	0.119	1.727	0.086
Do you have diabetes? (yes)	0.521	0.195	0.199	2.679	0.008
Do you have cardiovascular disease? (yes)	-0.070	0.087	-0.059	-0.800	0.425
Do you have endocrine diseases? (yes)	-0.046	0.116	-0.028	-0.400	0.690
Do you have gastrointestinal diseases? (yes)	0.138	0.116	0.081	1.192	0.235
Do you have respiratory diseases? (yes)	0.102	0.120	0.058	0.856	0.393
Do you have musculoskeletal diseases? (yes)	-0.103	0.083	-0.091	-1.236	0.218
Do you have recurrent migraines? (yes)	-0.101	0.091	-0.078	-1.105	0.271
Do you have neurological disease? (yes)	-0.036	0.161	-0.016	-0.225	0.822

Discussion

The purpose of the research was to assess the prevalence of the burden of noncommunicable diseases on midwives. Considering organization of care and physical demands of work, varicose veins and musculoskeletal problems reached over 30% prevalence in our sample. Allergies, cardiovascular disease (i.e., high blood pressure) and migraine were also among the top five health conditions. However, when we looked at their relationship to intent to leave midwifery, migraine remained the only variable from the top that determined midwifery turnover. Additional variables that influenced midwife turnover were having diabetes and neurological symptoms. Those who had diabetes, frequent migraines and neurological symptoms scored significantly higher on the intent to leave measure than those who did not report any symptoms. However, when these health conditions were assessed together with other factors, neither migraine nor neurological diseases emerged as predictors of intent to leave. Of all health conditions, only diabetes remained a significant determinant of midwife turnover. Besides diabetes, although to a much lesser extent, work-related physical demand and concerns over personal health/safety also determined intent to leave. Diabetes however made the strongest contribution when compared to these other predictors in our regression model. Why diabetes emerged and had the biggest impact on leaving midwifery is up to speculation at this point. This phenomenon can be explained by the supposed different health behaviour of this group, because we know that the most important risk factors of diabetes mellitus type 2 are obesity, physical inactivity, unhealthy diet, and that smoking is also an important contributing factor (Ardisson Korat et al., 2014). Moreover, we also have to take into account that diabetes mellitus type 2 can lead to the development of macro- and microvascular complications deteriorating the quality of life of patients (Rhee et al., 2011). In the research of Perry et al. (2016), not diabetes but respiratory symptoms arose as the predictor of intent to leave. Authors of this article assume that the management of diabetes, compared to other chronic conditions, requires an immediate change of lifestyle which midwives, perhaps due to their challenging work schedules, are unable to implement. On the other hand, the side effects and potential health damage of diabetes are well known to midwives. The combination of these factors may put pressure on midwives to decide on an early exit from the profession. Whether or not this hypothesis holds has to be tested in future research. As we saw in the introduction, overweight and obesity seem to be gaining increasing prevalence in midwifery, therefore, focusing on the impact of managing chronic conditions (diabetes or respiratory problems) for midwives may be an important research path.

As for the regression outcome, physical burden and noncommunicable diseases explained over 25% of the variance in midwives' intent to leave the profession.

Of the health behaviours surveyed, only taking sedatives was negatively related to intent to leave. That is, as the frequency of taking sedatives increased, the intent to leave decreased. Whether this is because sedatives help midwives overcome job related stress and reduce overall burden, or whether it is due to any other cause needs to be confirmed. We had no specific measure employed in this research to further explore and explain the relationship. A previous study found that higher workplace stress was associated with lower physical and mental health status (Chang et al., 2007). The organisational climate and perceived stress also correlated with each

other (Siket Ujváriné et al., 2020). These results show the importance of stress reduction among midwives.

In conclusion, we documented a relatively high burden of noncommunicable diseases in our midwifery sample. The leading health concerns were varicose veins and musculoskeletal symptoms, explained by the physical demands of midwives' workloads. Like earlier studies, we also confirmed a greater prevalence of smoking and, to a lesser extent, alcohol consumption. Our study succeeded in documenting a 15.9% rate of midwifery turnover intention. This was lower than that reported by Perry et al. (2016) and Stoll and Gallagher (2019) who recorded midwives' intent to leave at 22% and 35%, respectively. When the past 6 months was considered, Harvie et al. (2019) reported the rate of leaving midwifery at 50%. Why such differences between our research and others emerged may be explained by the different sociocultural and organizational contexts, however we included no explanatory variables in our study that could answer the question. What we saw was that physical aspects of midwives' work were significantly correlated to their intent to seek a new job when such physical demands were seen as overwhelming. The more those demands increased, the more midwives looked for an exit from the profession. Diabetes, migraine and neurological symptoms were responsible for the difference in the intent to leave midwifery. Out of the chronic conditions tested, having diabetes made the greatest contribution to leaving midwifery. Factors of physical challenge explained more than a quarter (26.2%) of the variance in the intent to leave the profession, that is, more than 25% of the decision to leave midwifery may be attributed to the physical/noncommunicable disease burden. While burnout and other psychological/mental indicators often receive more research attention, our above regression outcome suggests that physical well-being of midwives should not be overlooked at the expense of other influencing factors when job retention is considered. The authors of this article, therefore, argue that interventions aimed at reducing loss of midwives should address the physical burden of work as well as the impact of chronic symptoms developed as a consequence of high workloads.

Limitations

The authors acknowledge that while researchers intended to select a random sample of midwives, the final subject selection was carried out by unit managers. Whether unit managers were able to truly randomly select respondents may be considered a limitation of the study. While the organization of midwifery practice is fairly consistent across countries, local and cultural variations may prevent the immediate generalizability of research outcomes.

Conclusions

Physical burden and noncommunicable diseases explained over one fourth of the variance in midwives' intent to leave the profession. That is, the authors of this article argue that when making a decision about leaving midwifery, at least one quarter of that decision is based on how physically demanding midwives perceive their job to be and how noncommunicable symptoms impact their health. Because of the relative weight of these two groups of factors in turnover intentions, the authors of this article argue that improving the physical well-being of midwives is equally on par with providing psychological support and counselling.

While burnout and other psychosomatic symptoms usually receive more attention, midwife managers should not exclude addressing noncommunicable diseases as part of their intervention to improve quality of work-life. Managers should organize regular screenings for the most prevalent noncommunicable diseases or make close contact with occupational health services and carry out surveys about the health behaviour of midwives to reduce the burden of diseases and intent to leave midwifery.

Conflict of interests

The authors have no conflict of interests to declare.

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Authors' contributions

K E and KL had the main responsibility for the conception and design of the study, as well as for data analysis, interpretation of data and drafting the manuscript. PT, MZ and AS contributed to data analysis, interpretation of data and revising the article. AS contributed to revising the article. All of the authors have read and approved the final version of the manuscript.

Ethical statement

Institutional Research Review Board consent related to ethical considerations for each site was obtained prior to approaching research subjects (40/2015/KK; PTE13648/2016; 0/426-1/2015; 1101-28/2015; A-18-49/2015; 1299/2015).

Dopad nepřenospn ch nemoc  a fyzick  z t e  na z m r opustit povol n  porodn  asistentky v Maďarsku

Souhrn

C lem na i studie bylo prozkoumat dopad nepřenospn ch nemoc  a fyzick  z t e  na rozhodnut  opustit povol n  porodn  asistentky. Pr rezov  korela n  studie byla provedena u 231 porodn ch asistentek v porodnic ch v Maďarsku. Pro statistickou anal zu byly pou ity Spearmanovy korela n  koeficienty, Mann-Whitney v test a line rn  regrese. Prevalence nepřenospn ch nemoc  byla u nej ast j ch p ti onemocn n  v ce ne  30 %. Kře ov e  ily a muskuloskelet ln  problémy patřily mezi dominantn  pr znaky. Kouřeni a konzumace alkoholu ( asto/n kdy) dos hly v t ch rozm r  (18,2 % / 12,6 % v kontextu kouřeni; 0,4 % / 49,4 % v kontextu u iv n i alkoholu). Aspekty fyzick  z t e  spojen  s prac  byly v pozitivn  korelaci se z m rem odej t. Fyzick  z t e  a nepřenospn  nemoc  byly př чинou z m ru opustit povol n  u jedn  čtvrtiny porodn ch asistentek (26,2 %). Nej ast j  př чинou nepřenospn ho onemocn n  byla cukrovka. Intervence zam řen  na sni en  odchod  porodn ch asistentek by m ly ře it fyzickou z t e  t to p ce a tak  dopad chronick ch pr znak  vznikl ch v d sledku vysok  pracovn  z t e .

Kl čov  slova: fyzick  z t e ; nepřenospn  nemoc ; porodn  asistentky; z m r odej t; zdravotn  chov n 

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