

OCCUPATIONAL HEALTH OF MIDWIVES

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ABSTRACT

The midwifery profession varies greatly from one country to another. There are, however, a number of common features such as exposure to biological risks through contact with pregnant women and women in labor, exposure to postural stresses during examinations and medical acts, but also, increasingly, exposure to organizational constraints (work schedules, shift work, etc.). This article aims to give an overview of what is known about the occupational health risks of midwives (MWs). A review of the literature on Medline, from January 1, 2006 to December 31, 2017, was carried out. Articles focused principally on burnout (BO) and post-traumatic stress disorder. Several BO questionnaires were used. For the *Copenhagen Burnout Inventory*, the prevalence of personal BO ranged 20–57%; the percentage of work-related BO fell between 15–57%; and the prevalence of client-related BO ranged 5–15%. For the *Maslach Burnout Inventory*, the prevalence of emotional exhaustion varied between 23–60.7%; the prevalence of depersonalization ranged 3.3–30.3%; and the pervasiveness of personal accomplishment varied between 5–30.3%. There was little data concerning musculoskeletal problems or accidental exposure to biological fluids. The literature review on occupational pathologies demonstrates high levels of BO. Several gaps exist on the evolution of the impact of their work on the health of MWs, like the effect of shift work, postural stresses, etc. This review will make it possible to better focus future research on the occupational health of this population. Med Pr. 2020;71(4):473–81

Key words: midwifery, occupational health, occupational diseases, burnout syndrome, post-traumatic stress disorder, musculoskeletal diseases

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INTRODUCTION

The midwifery profession is emotionally challenging. Contact with parents, torn between their hope and fear of bad news, is always a rich human experience. It engages midwives (MWs) at a psychological level [1]. It is also a profession of a thousand faces; not the faces of the children being born, but rather those of the MWs who practice in sometimes extreme conditions (mountains, etc.) or in a hospital setting [2]. The profession is evolving quickly, because the level of studies required varies from one country to another: some MWs undergo traditional training, while others follow university courses and complement them with scientific theses [3]. In France, for example, MWs have gradually acquired

the status of a medical professional, on the same level as physicians, surgeons and dentists [4]. Wherever an MW practices, and whatever the level of studies that she/he has attained, MWs see their work as being rich in meaning and humanity [5].

Unfortunately, not all situations turn out favorably. Some births end in the death of the child or the mother. Some pregnancies are difficult and frightening for the parents who are filled with uncertainty about the future of their child. Obviously, MWs are not insensitive to this particular aspect of their profession. Some studies have shown that a high level of compassion is a factor in work-related fatigue [6]. Even during their training, students can suffer from emotional trauma and display signs of post-traumatic stress [7]. Such pa-

thologies can also develop over the course of an MW's career [8]. Aside from these tragic events, work organization itself can have detrimental effects on health. Actually, the work schedule, the number of working hours, problems with the institutional hierarchy, a lack of human and material resources, etc., are all factors that can lead to professional burnout (BO) [9]. The inability to deal with all of these situations can also create a sense of shame [10]. Furthermore, because of their posture or the position necessary to carry out maneuvers required in the childbirth process, MWs are subject to physical constraints that can bring about musculoskeletal disorders (MSDs) [11].

In the face of all these constraints and health risks, prevention measures should be put in place. Some authors suggest ways of coping, for example [12]. However, to improve prevention, it seems useful to have an overview of the occupational health problems of MWs. This article proposes a review of the literature on the occupational pathologies of MWs over the last 10 years.

METHODS

A literature review was done using the medical database Medline, between January 1, 2006 and December 31,

2018. Searches were carried out in Medline, Scopus, Pascal and BDSF (Banque de Données en Santé Publique) in English, French and Spanish. The key words used were: "Nurse Midwives"[Mesh]; "Midwifery"[Mesh]; "Occupational Health"[Mesh]; "Occupational Diseases"[Mesh]. On Scopus, the same English words were used. In French and Spanish, the following expressions were used: "sage-femme," "sages-femmes," "santé au travail," "maladie professionnelle," "maladies professionnelles," "pateras," "salud ocupacional" and "enfermedad ocupacional" (Figure 1).

Burnout was defined as a reaction to the workplace. It is characterized by emotional exhaustion, cynicism and reduced professional fulfillment [13]. In fact, BO is not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Post-traumatic stress disorder (PTSD) is a mental disorder which can be developed by someone after a traumatic event, such as a violent act. But it can also be developed after chronic stress [14]. This condition is described in DSM-5.

Only articles dealing with midwifery-related occupational health were included. Articles on health considerations for parents or children were, therefore, excluded, as were those for which it was not possible to determine whether the subjects were MWs or rather

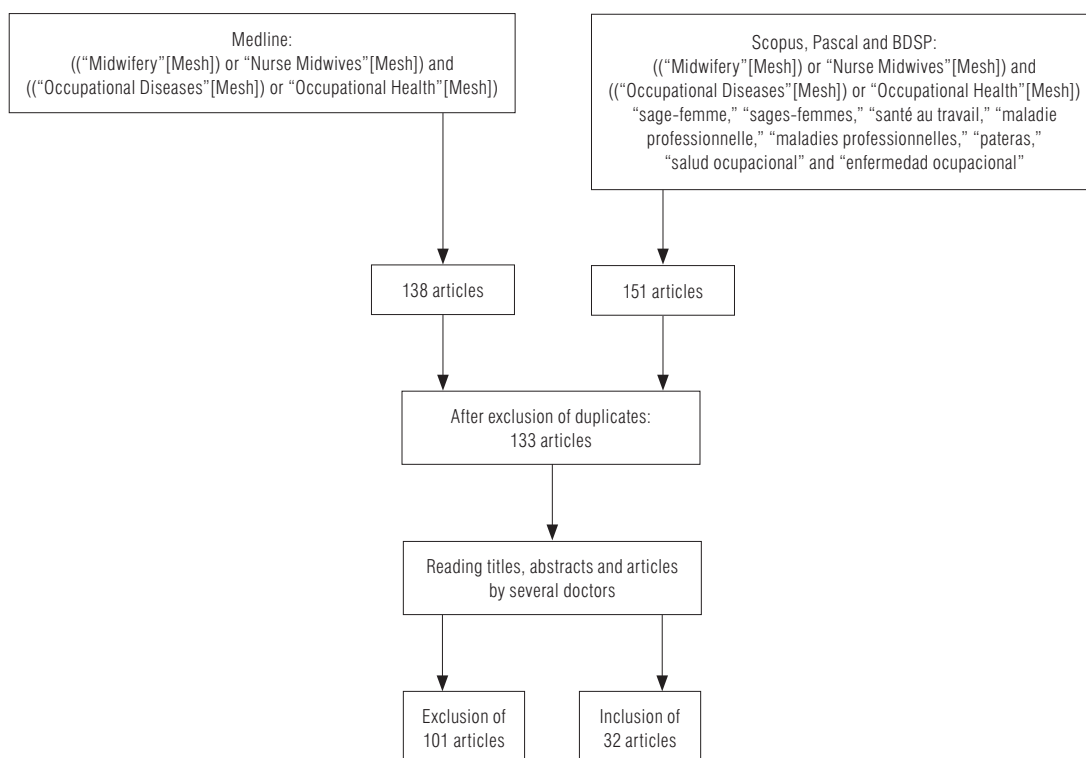


Figure 1. Articles selected for a review of literature between 2006 and 2018 concerning burnout among midwives

neonatal nurses or physicians. At first, articles were selected by reading their titles and abstracts. Then, the selection was made using the text itself.

The conditions and health problems described in the articles were classified according to the type of the pathology. When several articles used the same methodology, it was possible to create virtual populations by taking the data from the articles, in order to attain the overall prevalence rates. For example, for BO, several articles used the same questionnaire, with the same interpretation. The virtual population was thus the sum of the populations in all these articles and the overall prevalence was the sum of positive subjects in each article within this virtual population.

RESULTS

The main occupational health problems studied were the following: BO, psychosocial risks (PSRs) and stress, or PTSD. Other health risks were studied, e.g., MSDs and blood exposure accidents (BEAs). One article dealt with allergy risks. It was a literature review on skin sensitization to latex protein [15]. No new cases had been described since 2005.

Burnout and post-traumatic stress disorder

The prevalence of BO was studied in 13 articles, among which 2 types of studies emerged: one type assessed BO using the *Copenhagen Burnout Inventory* (CBI), while the other type used the *Maslach Burnout Inventory* (MBI) (Table 1). The CBI studied 3 other forms of BO: personal BO, work-related BO and client-related BO. The levels of prevalence were the following: 20–57% for personal BO; 15–57% for work-related BO; and 5–15% for client-related BO.

The MBI studied 3 dimensions of BO: emotional exhaustion, depersonalization and personal accomplishment (Table 1). The levels of prevalence ranged: 23–60.7% for emotional exhaustion; 3.8–30.3% for depersonalization; and 5–30.3% for personal accomplishment.

A cross-sectional study in Uganda assessed the link between exhaustion, the quality of life and job satisfaction, using the following questionnaires: the *Professional Quality of Life Scale*, the *Perceived Well-Being Scale* and the *Job Satisfaction Subscale* [28]. The methodology used was, therefore, not comparable to the items in Table 1. Overall, 238 MWs participated. The mean scores on the *Professional Quality of Life Scale* showed an average compassionate satisfaction (19 ± 4.88), BO (36.9 ± 6.22)

and secondary traumatic stress (22.9 ± 6.69). The midwives' compassion satisfaction was related to psychological well-being ($p < 0.01$) and job satisfaction ($p < 0.01$). Conversely, their BO levels and secondary traumatic stress were associated with the educational level ($p < 0.01$), marital status ($p < 0.01$), involvement in non-midwifery health care activities ($p < 0.01$), and physical well-being ($p < 0.01$). Compassion is correlated with both the quality of life and job satisfaction.

Some authors studied the link between the symptoms of BO and ethical issues. Mizuno et al. studied BO and job satisfaction in 86 MWs working in abortion clinics [29]. They used several standardized scales: the *Professional Quality of Life Scale*, and the Japanese version of the *Frankfurt Emotional Work Scale*. The results showed satisfaction at 34.6%, fatigue – 22.1%, and BO – 27%. The stress factors “thinking that the aborted fetus deserved to live” and “difficulty in controlling emotions during abortion care” were associated with compassion fatigue.

Rees et al. have started surveillance of BO in Australia, among nurses. In 2018, they studied the link between BO and workplace violence [30]. They showed that 53% of the 2397 people who responded to the questionnaires regarding occupational violence had been victims of ≥ 1 violent event in the previous 3 months. People who had been victims of violence were more likely to have BO than the others ($p < 0.05$).

There were 3 original articles devoted to PTSD [8,23,31]. Prevalence fell between 32–36%. In addition, 2 studies showed a link between PTSD and a serious incident at work, particularly death in neonatology [31].

Psychosocial risks

Several articles focused on PSRs according to other approaches. Several authors showed the socio-economic evolution of hospital work as being unfavorable for MWs' occupational health. In particular, the number of MWs tended to decrease despite the increasing need for care in several countries [31,32]. The analysis of organizational constraints showed several PSRs: staggered hours, value conflicts, such as working in an abortion room, or feeling that you do not have enough time to provide good care [29,33,34]. Another risk factor appears in the literature: external and internal violence at the hospital. For the first, it is verbal or physical aggression. Rodwell et al. showed that 21% of MWs were often verbally abused by patients or their loved ones [35]. Several prevention proposals have been given. Farrell

Table 1. A review of literature between 2006 and 2018 concerning burnout among midwives

Reference	Methodology	Prevalence of BO	BO risk factors
Studies using CBI			
Dawson et al., 2018, Australia [16]	cross-sectional study about the prevalence of BO among MWs of 111 public hospitals; 503 MWs answered	99 (20%) personal BO 100 (20%) work-related BO 99 (20%) client-related BO	MWs working within a caseload model had lower personal and work-related BO scores ($p < 0.05$)
Fenwick et al., 2018, Australia [17]	cross-sectional study about BO among 990 MWs	643 (64.9%) personal BO 428 (43.8%) work-related BO 102 (10.4%) client-related BO	protective factor: having a child, working within a caseload risk, working in a regional area risk factor: being registered for 5–10 years
Fenwick et al., 2018 [18]	study comparing MWs working in a continuity of care unit, and other MWs: 214 MWs vs. 648 MWs		the continuity of care group had lower scores (personal BO $p = 0.02$; work-related and client-related BO, $p < 0.01$)
Jepsen et al., 2017, Denmark [9]	cross-sectional study using CBI, a population of 62 MWs, a response rate of 82%, or $N = 50$ MWs	11 (22%) personal BO 10 (20%) work-related BO 5 (10%) client-related BO	
Henriksen and Lukasse, 2016, Norway [19]	cross-sectional study using CBI, a population of 1500 MWs, $N = 598$ MWs	120 (20%) personal BO 120 (20%) work-related BO 30 (5%) client-related BO	being young, being single
Newton et al., 2014, Australia [20]	cross-sectional study using CBI, $N = 133$ MWs	64 (49%) personal BO 52 (40%) work-related BO 8 (5%) client-related BO	
Hildingsson et al., 2013, Sweden [21]	cross-sectional study using CBI, a population of 1000 MWs, a response rate of 47.5%, or $N = 475$ MWs	108 (39.5%) personal BO 71 (15%) work-related BO 71 (15%) client-related BO	professional stress lack of staff meetings conflicts with co-workers conflicts with superiors
Jordan et al., 2013, Australia [22]	cross-sectional study using CBI, $N = 58$ MWs	33 (57%) personal BO 33 (57%) work-related BO 5 (9%) client-related BO	
total	8 articles [9, 16, 17, 19–22]; $N = 2807$ MWs	1 078 (38.4%) personal BO 814 (29.0%) work-related BO 320 (11.4%) client-related BO	
Studies using MBI			
Creedy and Gamble, 2016, UK [23]	cross-sectional study about the prevalence of BO in MWs with PTSD (IES-R); burnout (MBI) $N = 421$ MWs	PTSD: 139 (36%) Within this population: 32 (23%) emotional exhaustion 19 (14%) depersonalization 15 (11%) personal accomplishment	
Geuens et al., 2015, Belgium [24]	cross-sectional study using MBI, the Dutch <i>Interpersonal Adjective Scale</i> and the <i>Job Satisfaction Scale</i> (by Macdonald and MacIntyre, 1997) $N = 192$ MWs	BO: 5 (3%) 63 (33%) emotional exhaustion 27 (14%) a high score of depersonalization 9 (5%) a low score in personal accomplishment BO	

Sheen et al., 2015, UK [8]	cross-sectional study about the prevalence of PTSD and BO, using IES-R and MBI N = 421 MWs	PTSD: 138 (32%) 156 (39.9%) emotional exhaustion 16 (3.8%) depersonalization 43 (10.2%) personal accomplishment	stress, significant working hours protective factors: decision-making autonomy; the sense of work-life balance
Yoshida and Sandall, 2013, Haiti [25]	cross-sectional study using MBI, N = 238 MWs	BO: 128(54%)	
Mollart et al., 2013, Australia [26]	cross-sectional study using MBI, N = 56 MWs	34 (60.7%) of MWs experienced moderate to high levels of emotional exhaustion 17 (30.3%) depersonalization 17 (30.3%) a low score in personal accomplishment	the impact of years in the profession, shifts worked, the number of women with multiple psychosocial issues
Kalicińska et al., 2012, Poland [27]	analytical epidemiology study comparing the prevalence of BO among nurses and MWs	58 nurses vs. 59 MWs a higher prevalence of BO for MWs	
total	with only articles studying BO by MBI in the general population of MWs 3 articles [8,24,26]: N = 669	253 (37.8%) emotional exhaustion 60 (8.9%) a high score of depersonalization 69 (10.3%) a low score in personal accomplishment burnout BO	

BO – burnout, CBI – Copenhagen Burnout Inventory, MBI – Maslach Burnout Inventory, MWs – midwives, PTSD – post-traumatic stress disorder, IES-R – Impact of Event Scale Revised.

et al. made the following statement, “The study found more “protection” from assault when there was a high standard of patient facilities, sufficient staffing, effective enforcement of policies, and when staff were provided with personal protective equipment” [36]. The second type of violence involves violence within the care team. Rodwell et al. showed that 18.8% of MWs were victims of bullying and 1.5% of sexual harassment [35]. Relational problems at work can also be expressed as a cultural gap between different professions. So, the Birth Project Group has collected various testimonials from MWs. For them, fear is the main obstacle to well-being at work. This fear could be due to the organization of work or the climate of fear encouraged by gynecologists [37].

All these factors explain the prevalence of BO, or the feeling of stress. Knezevic et al. studied stress among MWs with the *Occupational Stress Assessment Questionnaire* (OSAQ) for health-care workers and the *Work Ability Index* (WAI) questionnaire. They showed that 76.7% of MWs were stressed [38]. This is consistent with the study by Adgie et al. who found, through a self-questionnaire, that 48% of MWs were under stress daily and that 78% were stressed because of their workload [39].

Nonetheless, there were some protective factors. For example, Hildingsson et al. showed the following protective factors: the quality of private life, relations with the physician, or playing a leadership role at the hospital [32].

Other occupational health problems

Several studies have analyzed other occupational health issues, e.g., BEAs and musculoskeletal disorders MSDs.

The prevalence of BEAs is difficult to investigate, particularly because of a lack of systematic BEA reporting. One article showed that 40–80% of BEAs among Australian MWs were not declared due to a lack of time, knowledge of the risks or work organization [40]. Yet, MWs are considered a population at risk. Thus Askarian et al. studied the risk of BEAs over the entire career of MWs relative to nurses, comparing 146 MWs and 145 nurses in Iran. The prevalence of having ≥1 BEA over an entire career was 71% in MWs vs. 29% in nurses. The risk was thus significantly higher for MWs (OR: 4.72 [2.69–8.26]) [41].

The MW population is also at risk for MSDs [11]. Thiede et al. compared the most at-risk occupations for MSDs for women, relative to men, in a population of 2877 people (51.9% women vs. 48.1% men) [42]. The 2 most at-risk professions were nursing and midwife-

ry. The main factor, according to the authors, was the extreme postures that MWs must hold during care, especially deliveries. Other factors can lead to joint pain, such as lower leg pain associated with walking. Night work was not related to a higher prevalence of MSDs, according to the study by Burdelak et al. [43]. They studied pathologies in nurses and MWs who worked at night, in comparison with those who worked during the day. There was no significant difference. The authors thought it was a healthy worker effect, because night workers were significantly younger.

DISCUSSION

This review of the literature on occupational health problems in MWs over a period of 10 years has highlighted several issues that have been addressed: BO, PTSD and PSRs, but also BEAs and MSDs. The main pathology studied was BO. The levels of prevalence were extremely variable from one country to another, or rather from one study to another. This review of the literature was an opportunity to determine the levels of prevalence in a virtual population when several articles studied BO with similar methodologies. Thus, using CPI in a virtual population of 1314 MWs, the authors found: 336 (25.6%) personal BO; 286 (21.8%) work-related BO; and 119 (9.1%) client-related BO, while using MBI in a virtual population of 669 MWs, they found: 253 (37.8%) emotional exhaustion; 60 (8.9%) a high score of depersonalization; and 69 (10.3%) a low score in personal accomplishment BO.

There are, however, several limitations to this literature review. The virtual population approach could be criticized. There could be duplicates of subjects from one study to another, or differences in the interpretation of the questionnaires. Given the diversity of countries, the risk of duplication seems low and negligible. Moreover, to avoid interpretation bias, only articles with the same objectives, the same standardized questionnaires and the same validated methods of interpretation were retained. For example, the article investigating the prevalence of BO in the subpopulation of MWs with PTSD was excluded from the analyses.

There may be some bias in the medical literature regarding MWs' emotional suffering at work. The articles mainly studied BO, perhaps due to the fact that BO, in general, has been greatly discussed recently. However, there are many reaction disorders at work. In particular, stress can become a reaction anxiety disorder, as can be seen in the health sector. The prevalence of anxiety dis-

orders is 28% among physicians and 40% among nurses [44–46]. In addition, being around patients who are suffering, together with other work pressures, can also lead to mood disorders. These disorders are common among other caregivers. The prevalence of mood disorders among physicians ranged 13%–30% depending on the study [45,47], while as regards nurses, some articles showed that 13.3%–18% suffered from serious depression [48,49].

Studies focusing on these reactive psychiatric problems would make it possible to estimate the prevalence of these disorders. They would also allow one to link the reaction disorders (BO, anxiety, mood disorder) with the working conditions or with the type of pathologies encountered, or to disaffirm this link. For example, in a study of nurses with staggered hours, especially at night, Waage et al. showed that they had more depression, more sleep disturbances and a higher consumption of hypnotics than nurses without staggered schedules [50]. Night work is also identified as a breast cancer risk. In fact, MWs often have staggered hours, because many deliveries are at night. It would, therefore, be useful to better study the effects of this exposure. In addition, the health consequences to MWs from exposure to violence should be better studied. In this review, Rodwell et al. showed that nearly 20% of MWs experienced violence or harassment. Exposure to violence, whether verbal or physical, is known to cause mood disorders in caregivers [51]. The same is true for sexual harassment [52]. Therefore, the data in the literature about the impact of violence in the health care setting should be completed.

For BO, the literature review showed the main risk factors. This review of the literature included hourly volumes, staggered hours, and relations with colleagues or the institutional hierarchy. However, it would be useful to better specify the link with the working conditions themselves. There were no articles examining organizational models for types of work where employees are at a greater risk of suffering at work, such as the Karasek and Siegrist models, already used for health care workers [46]. Karasek's *Job Content Questionnaire* examines the work situation, based on 3 dimensions: decision latitude, psychological demand, and support from colleagues and the hierarchy. Job strain is defined by the combination of low decision latitude and high psychological demand, which can then be compounded in the case of low support. Such a work situation is known to cause reaction disorders. Studies using this questionnaire could improve primary prevention.

For its part, Siegrist's questionnaire explores the balance of effort and rewards at work [53,54]. Each job requires consenting to efforts (workload, hourly volume, staggered hours, etc.). However, work brings rewards of different kinds (financial, social recognition, etc.). The psychic risk situation corresponds to an imbalance: too much effort for insufficient rewards. For MWs, the literature shows clear efforts identified in this review as risk factors for BO. However, it would be useful to identify the rewards perceived by MWs. For example, placing value on the profession, which is linked to life and birth, can be a strong element of stimulation, perhaps enough to mask certain efforts. The article on MWs in abortion rooms shows that ethical investment is a reward element. Perhaps it would be interesting to better identify the positive elements at work to increase them and, consequently, to reduce malaise at work.

This review of the literature could, therefore, assist in the prevention of BO, because several protective and risk factors were identified. There have been several prevention programs. Some are focused on stress management, such as mindfulness training. While these programs have shown some effectiveness, prevention should focus on the proven risk factors, as the reduction of these factors should make it possible to reduce BO.

Other risks have been little studied in the last decade. The midwifery profession can expose MWs to the risk of BEAs to varying degrees, depending on the exact roles of MWs. In France, as MWs are medical staff, they are required to suture parturients. They may, therefore, have a risk of BEAs, but also risk exposure to the placenta or amniotic fluid, in cases of projection onto the mucous membranes. This biological risk can lead to contamination: mainly HIV infections, hepatitis B and hepatitis C virus. During a BEA, caregivers may also suffer from acute stress or even develop PTSD. Finally, additional studies should focus on the risk of MSDs in this population. This is a health problem for caregivers in general. Midwives have to lean forward while they work, or even squat during deliveries. These positions may increase the risk of lumbar pathologies, such as sciatica, and knee pathologies, including hygroma. In addition, during pregnancy follow-up, the regular practice of ultrasounds, which involves abduction of the shoulder more than 60° in the static position, exposes tendinopathies of the shoulder and sub-acromioclavicular conflicts. Field assessments should better quantify these pathologies and the postural constraints of MWs.

CONCLUSIONS

This literature review has shown the psychological risk of practising midwifery. In particular, numerous studies have evaluated the prevalence of BO, along with the risk factors of this syndrome. There are factors intrinsic to individuals, but especially factors related to work organizations, such as staggered hours or a lack of service staff. This review also highlighted some shortcomings in the international literature on MWs' occupational health, as well as provided a synthetic view of the risk factors for BO that have been demonstrated. Prevention should target these factors as a priority. Otherwise, there is little data on the expected occupational risks such as BEAs and MSDs. This article will help professionals have some perspective on their practices and the risks to their health.

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