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THE REGISTRAR PARENT

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INTRODUCTION

Medicine is an area of study that attracts the career-conscious. Media and history have created the idea of a physician as intelligent, committed, and driven in their pursuit of excellence and patient care. Yet physicians are also human.

Many physicians have families. Balancing a family life and pursuing specialty training is challenging. Specialty training occurs during prime childbearing years. There is usually financial security and stability in other areas of life. Hence many registrars choose this period in their lives to start a family.

In our very own department, just a little over 40% of registrars have children, a few having more than one. The aim of this review is to illustrate the challenges faced by registrar parents and explore some of the solutions and options that registrar programmes may implement in order to accommodate what appears to be a commonplace situation that many postgraduate trainees may find themselves.

ATTITUDES TOWARDS PARENTS

Registrar time is challenging for several reasons. In addition to prolonged working hours and inflexible schedules, non-clinical duties, presentations, meetings, academic activities, and assessments both formal and informal require the time and attention of the registrar (1).

Historically, registrar parents have been treated with hostility and resentment (2). However, this does vary with specialty. While evidence on this attitude pertaining to Anaesthesia and Critical Care is currently lacking, surveys conducted on registrars in Internal Medicine and several surgical specialties have confirmed the validity of this statement (2).

The context behind this attitude is vague, with some evidence in the United States of America pointing towards programme directors and colleagues feeling that pregnant registrars may not gain enough clinical experience due to maternity leave or parenting duties (2, 3). In turn, lack of experience may deter registrars from optimal clinical performance and dedication (2, 4). Other registrars feel that they may have to pick up additional workload in order to cover for colleagues that have parental responsibilities/ obligations (2-4).

While this sounds like a reasonable train of thought, the evidence is to the contrary. There doesn't seem to be any impact on attrition rates, case numbers, or examination success rate for either mothers or fathers undergoing registrar training. (4) These results are from studies conducted on surgical registrars, but this evidence has also been corroborated in several other surveys and evaluations across multiple specialties (1). However, evidence among anaesthetists is lacking.

In summary, the attitude towards registrar parents is a remnant of traditional registrar training, whereby having children was seen as a rarity and the job was all that mattered. In a changing landscape where parents are born during registrar training, this attitude may need to be revisited as evidence does not seem to correlate with the reasons behind this. Naturally, this is not a phenomenon everywhere, and there are several programmes around the word that recognise that being a parent does not handicap a registrar in any way. (1)

However, the current literature is very limited, as many of these studies are cross-sectional in nature and confined to single institutions. It is clear that issues should be broached at a departmental level, and measures should be put into place to address implicit biases, stigmatism, and any form of discrimination (5).

WORK PERFORMANCE

Evidence has shown that both parenting and non- parenting trainees believe that should a registrar be absent for several weeks or months as a result of paternal or maternal leave, or call-in family responsibility leave for a sick child, the workload will inevitably pass onto other colleagues (1, 6). This has been shown to be the case in numerous surveys regarding the correlation between workload and parenting (6). In specialties like surgery, this can be an immense additional responsibility for other registrars. However, surveys done in Dermatology show the very same challenges (4, 6). Thus, one may conclude that this is a challenge that affects the parent registrar's training in general.

While this unfortunate spread is not truly preventable, evidence shows that in terms of work performance, it has no observable effect (7-9). The performance in question refers to outcomes such as patient number, clinical skill acquisition, academic achievements, research output, and examination success (4, 9).

It is also worth mentioning that while the perception of reduced performance has no evidence behind it, registrar parents themselves seem to perceive this reduced performance as a reality, both pre-childbirth and after. (8)

While parenting duties and personal distractions will increase, the evidence shows that work performance does remain the same.

THE IDEAL REGISTRAR

There are several qualities that make up an ideal registrar. One would assume that these qualities are actively sought when selecting medical officers into specific programmes. Miyares identified ten essential qualities of an ideal registrar.

1. **Clinical knowledge:** This is a two-way street. What is expected is that the undergraduate years and internship training should prepare a medical officer to adapt to the increased intensity and specialized form of knowledge that comes with registrar training (10). On the other hand, the programme itself needs to be aligned in such a way that registrars are faced with the opportunity to build upon their previous knowledge (10).

2. **Self-awareness and commitment to improvement:** Basically, learning is supposed to be a daily habit. As a registrar goes through training, they should be able to continue reading, learning, and attending to gaps in knowledge, thus nurturing a continual cycle of improvement (10). Practically, this involves reading around cases, discussing cases, implementing anaesthetic plans of one's own making, and learning from seniors and other consultants, thereby improving with time and effort.

3. **Service orientation:** This is the concept of placing the needs and interest of patients and others above the registrar's own interests (10). In addition, this responsibility extends to mentorship as well (10). Registrar's should strive to accommodate and assist newcomers to their programme and make them feel welcome and comfortable (10).

4. **Pride in the profession:** A registrar should gain enjoyment and pleasure from their work (10). The principle here is that the registrar should feel rewarded and satisfied despite long hours and hard work, as the pleasure gained from their work should offset anything else (10).

5. **Covenantal relationship with the patient:** Empathy and respect to patients must be of utmost importance (10). How one presents oneself to the patient, in terms of behaviour, communication, and appearance, should be tailored toward professionalism and compassion (10). A registrar should treat all persons equally, regardless of differences in values, cultures, and belief systems (10).

6. **Creativity and Innovation:** This pertains mainly toward research (10). A registrar should be inclined to asking questions and finding answers to unique problems (10). Originality in research is the desired quality (10).

7. **Conscience and trustworthiness:** Registrars should conduct themselves with integrity and honesty (10). It is implied that as time moves on and a registrar progresses through training, they should be trusted with undertaking more advanced duties without supervision (10). This progression should be seen as a privilege and a registrar should aspire to keep this privilege by continued integrity and improvement (10).

8. **Time management and prioritization:** A skill highly sought after in every sphere of industry, a registrar must be able to complete tasks within allocated timeframes and be able to juggle an assortment of tasks and objectives (10). This skill is essential for completion of exams, presentations, and research projects, as well as fulfilment of personal and familial commitments.

9. **Ethically sound decision-making:** This is in reference to adhering to the primary pillars of ethics in all clinical decisions, with particular emphasis on respecting the autonomy of patients (10). Knowledge of basic medical law is required, and the ability to recognise when guidance is needed form the foundations of this aspect of a registrar (10).

10. **Leadership:** The pursuit of leadership roles is recommended, especially early on, as this results in exposure to challenges, strategies, shared visions, and meaningful peer relationships (10).

As daunting as these qualities are to aspire to, they are all linked by a central hub, namely the attainment of a balanced life (10). Making time for friends, family, and one's own hobbies should also be considered to be an important aspect of an ideal registrar (10).

To adhere to these qualities at all times is challenging, yet this does give one a schematic to pursue in terms of perfectionism. While striving for these qualities should not be any different for a parent, the idea of service orientation may cause conflicts between the role of parent and the role of registrar. Parents hold their duties toward their children as a top priority, and any challenges to this duty would be in favour towards the benefit of their child (11).

Leadership roles and commitment to pursuit of knowledge can take over valuable home time and family duties, whereas qualities like self-awareness and time management skills would be of benefit to parenting registrars.

EFFECT OF WORKLOAD ON PARENTING

The high stress environment of a registrar programme has been shown to affect mood, with anger and depression predominating the spectrum of mental health issues that aspiring specialists are forced to battle on a daily basis (12). Literature as far back as the 1980's have identified that among the many stressors in a registrar's life, inadequate sleep and fatigue are the most impactful (12). The amount of hours spent at work and social support have been shown to be major influential factors that may mitigate the consequences of these stressors (12).

Studies from Johannesburg and Bloemfontein have shown that the prevalence of burnout and stress are high among South African registrars (13, 14). Research from the Department of Anaesthetics at the University of Witwatersrand showed this level to be as high as 21%, comparable to other similar studies worldwide, with registrars identified as a high-risk group (15).

Table 3: Distribution of participants by degree of burnout (high, moderate, low) for all three dimensions overall and according to gender and ethnicity, job roles and shifts

Level of burnout per dimension	Overall	Gender		Ethnicity					Job role		Shifts worked	
		Male	Female	Black	White	Coloured	Indian	Other	Registrar	Medical Officer	Day shift	Mixed shifts and night duty
	n = 205	*n* = 125	*n* = 79	*n* = 58	*n* = 122	*n* = 12	*n* = 7	*n* = 6	*n* = 167	*n* = 38	*n* = 33	*n* = 172
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Sulbscale EE												
High (≥ 27)	98 (47.8)	45 (36.0)	52 (65.8)	24 (41.4)	59 (48.4)	5 (41.7)	4 (57.1)	6 (100.0)	77 (46.1)	21 (55.3)	9 (27.3)	89 (51.7)
Moderate (17–26)	56 (27.3)	39 (31.2)	17 (21.5)	21 (36.2)	30 (24.6)	4 (33.3)	1 (14.3)	0	44 (26.4)	12 (31.6)	11 (33.3)	45 (26.2)
Low (0–16)	51 (24.9)	41 (32.8)	10 (12.7)	13 (22.4)	33 (27.1)	3 (25.0)	2 (28.6)	0	46 (27.5)	5 (13.2)	13 (39.4)	38 (22.1)
Subscale DP												
High (≥ 13)	82 (40.0)	42 (33.6)	39 (49.4)	9 (15.5)	59 (48.4)	7 (58.3)	3 (42.9)	4 (66.7)	65 (38.9)	17 (44.7)	7 (21.2)	75 (43.6)
Moderate (7–12)	65 (31.7)	44 (35.2)	21 (26.6)	25 (43.1)	35 (28.7)	3 (25.0)	1 (14.3)	1 (16.7)	57 (34.1)	8 (21.1)	13 (39.4)	52 (30.2)
Low (0–6)	58 (28.3)	39 (31.2)	19 (24.1)	24 (41.4)	28 (23.0)	2 (16.7)	3 (42.9)	1 (16.7)	45 (27.0)	13 (34.2)	13 (39.4)	45 (26.2)
Subscale PA												
Low (≥ 39)	38 (18.5)	24 (19.2)	13 (16.5)	7 (12.1)	26 (21.3)	4 (33.3)	0	1 (16.7)	32 (19.2)	6 (15.8)	5 (15.2)	33 (19.2)
Moderate (32–38)	89 (43.4)	56 (44.8)	33 (41.8)	28 (48.3)	53 (43.4)	2 (16.7)	4 (57.1)	2 (33.3)	72 (43.1)	17 (44.7)	19 (57.6)	70 (40.7)
High (0–31)	78 (38.1)	45 (36.0)	33 (41.8)	23 (39.7)	43 (35.3)	6 (50.0)	3 (42.9)	3 (50.0)	63 (37.7)	15 (39.5)	9 (27.3)	69 (40.1)

Notes: EE = emotional exhaustion; DP = depersonalisation; PA = personal accomplishment.

Adapted from: Sirsawy U et al. Levels of burnout among registrars and medical officers working at Bloemfontein public healthcare facilities in 2013. South African Family Practice. 2016;58(6):213-8

Parenting itself comes with its own set of stressors, especially with regard to social support, financial challenges, how long one spends with one's child, and issues pertaining to the care of the child, which is especially complex when the child requires special needs (16). The effect of these particular stressors on work performance and academics has not been investigated.

Table 3. Burnout scores of Wits doctors compared with demographics

	High *n*	Moderate–Low *n*	*p*-value
Gender			
Males	10 (18.2%)	45 (81.8%)	$p = 0.49$
Females	16 (23.2%)	53 (76.8%)	
Experience (years)			
< 4	11 (25.6%)	32 (74.4%)	$p = 0.37$
4–8	12 (25.0%)	36 (75.0%)	
9–12	2 (18.2%)	9 (81.8%)	
13–16	0 (0%)	5 (100%)	
> 16	1 (5.9%)	16 (94.1%)	
Age group			
21–30	9 (22.5%)	31 (77.5%)	$p = 0.07$
31–40	16 (26.2%)	45 (72.8%	
≥ 41	1 (4.4%)	22 (95.7%))	
Designation			
Medical officer	1 (7.1%)	13 (92.9%)	$p = 0.22$
Registrar	16 (27.1%)	43 (72.9%)	
Consultant	9 (17.7%)	42 (82.4%)	
Exams			
Yes	10 (29.4%)	24 (70.6%)	$p = 0.15$
No	16 (17.8%)	74 (82.2%)	

Note: Total $n = 124$.

Adapted from:
Van der Walt N et al. Burnout among anaesthetists in South Africa. Southern African Journal of Anaesthesia and Analgesia. 2015;21(6):169-72

Since the demands of registrar time and parenting alone can be so high, there is a significant challenge dealing with their co-existence. It seems that perception from Registrars is one of dissatisfaction with time spent parenting, possibly due to the fact that they feel that not enough time is spent actively involved in parenting activities. But evidence showing that this is to the detriment of children is still not conclusive (8, 17).

Registrar programme managers should be actively involved in identifying registrars that may be displaying difficulty in coping with personal or professional stressors.

CHALLENGES OF MAINTAINING BALANCE

Social scientists have fleshed out the concepts of the ideal parent and the ideal worker (18). Traditional parenting roles still predominate in society, and hence the roles for an ideal parent are generally subdivided into that of an ideal mother and ideal father.

It is interesting to note that fathers are considered ideal if they are able to support their family financially (18). Mothers are considered ideal if they are able to care for their family (18).

In managerial science, the ideal worker is described as an individual who is fully dedicated to their work and prioritizes work over activities and responsibilities outside of work (19). The expectation here is that an ideal worker should be a full-time employee, should do overtime when necessary, display an element of flexibility to their working hours, and also be available to their employer at all times (19). The concept of an ideal worker is not compartmentalized to any one discipline or sector of employment, but has long been understood to be a universally accepted list of virtues that if contravened, indicates a less than adequate worker.

When examining the dichotomies between the concept of an ideal worker and ideal parent, there are some discrepancies in terms of definition. If one looks at the essential qualities of an ideal father, the ability to support a family financially is symbiotic to the ideal worker, since work leads to financial compensation (18). In contrast, the ideal mother and idea worker models are at odds with each other, since to be one tends to violate the other (18). Additionally, there are conflicts between being an ideal parent and an ideal registrar, as mentioned previously. One does not have to look very far than our very own programme, where working mothers must balance academic duties, studying, and clinical work while still being primary caregiver to their children. The same could be said for our working fathers, who tackle these very same registrar obligations and still have to be parents.

It is essential to recognise that these are just social models – constructs based on societal norms that don't always fit neatly into little boxes. A father may consider himself to be ideal if he is able to care for his family, and a mother may consider the financial security of her family a top priority. Thus these traditional gender-based models may not truly reflect individual circumstances. Regardless of these technicalities, it is clear that striving a balance between being a Registrar and being a parent is a great challenge, one that often works against the other.

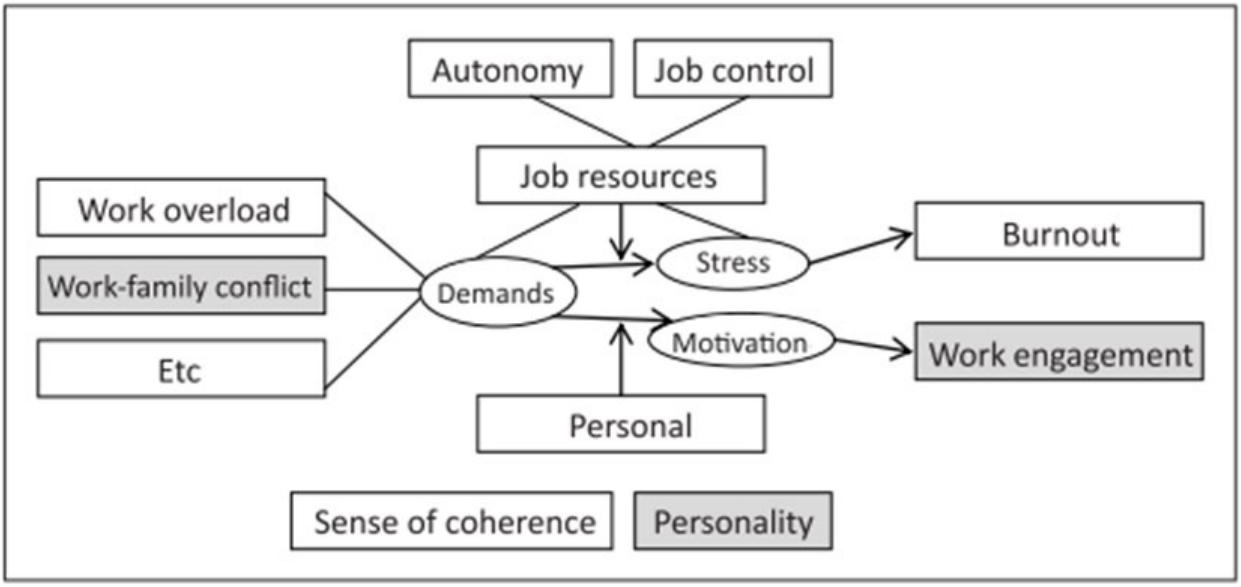
South African family research shows that there is an increasing trend in the formation of non-nuclear family structures, such as single parent families, skipped-generational and inter-generational families (20). Additionally, it is important to consider that the traditional idea of parental responsibility and roles are incorporated in non-nuclear families in many different ways, such as caregivers who may be related to their wards or who may not be, same-sex partners, polygamous relationships, and divorcees (20). Research into how these family structures may affect registrar duties is scarce at this time, but it is safe to assume that the challenges would be similar.

Work-life balance involves satisfaction and comfort with both work and family commitments, and from many studies conducted on this subject in medical practitioners, this balance is tenuous at best (8, 12, 21). In essence, there is no easy answer to maintain this balance in the medical fraternity, especially among registrars. While there are well-validated evidence-based options such as flexible work schedules, reduced work weeks, and working from home, none of these are conducive to a registrar's intense schedule (22). In fact, one might conclude that it is antonymous. By definition, a registrar has a rigid roster, cannot work from home in terms of clinical work and employment contract, and a reduced work week may occur only when on

some form of leave. It may be reasonable to relook at these employment conditions and perhaps implement the above strategies to cater to a more balanced experience.

Local research from Johannesburg has shown that a negative work-life balance in working mothers leads to poor work engagement and performance (23). Furthermore, registrar parents in Cape Town were more inclined to regard their learning environment as poorly supportive (24). For registrars, especially in anaesthetics and critical care, such disengagement may negatively impact patient care. Hence balance is crucial, especially since failure at achieving this balance can lead to registrars struggling to cope with their myriad of duties, and in failing to do so, either burning out or leaving their programmes (25, 26).

Registrar time tends to coincide with some important life events, making it paramount that registrars must use the available coping resources during education and their training. There is also good evidence to show that mentorship, either formal or informal, can be beneficial to parent registrars. In order to strike a balance, one must understand the requirements of being a parent, worker, and a registrar, and find balance between professional, academic, familial, and inter-personal duties and commitments.



Source: Adapted from Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86,* 499–512. http://dx.doi.org/10.1037/0021-9010.86.3.499 Arrows do not indicate causality, but only direction of prediction.

FIGURE 1: The job demands-resources model.

FINANCES

While it may be true that money cannot buy happiness, research suggests that it may be one of the most important factors in successful parenting (27). Adequate finances facilitate the provision of familial needs, nurturing and development of children, improved exposure to opportunities and education, and authoritative parenting (27). However, financial security alone does not make good parents, as there are a host of additional factors involved. Without delving into the effects of poor use of finances and lack of finances, what is important to note is that finances do make a difference, for better or worse (27).

It is no secret that being a parent is a costly endeavour. Currently, there is no reasonably accurate data estimating the financial expense of having children. The challenges of procuring such data renders the pursuit of a ballpark figure intangible, but financial scientist Bruce Bradbury decided to use several mathematical models and data collected from parents in Australia to come up with a reasonable estimate. He used several different variants and comparisons that exceed the scope of this review, but he ultimately concluded that the full cost of having one child came to R7000-R9000 weekly (28)! While this seems an excessive figure, the cost is based on the assumption that this cumulative cost occurs over 18 years, and includes schooling, medical costs, extra-curricular activities, etc. This cost was also limited by region, and thus the financial costs of living may differ in the South African context.

While data in South Africa is limited, the Financial Planning Institute (FPI) of South Africa estimates an annual cost of R90000, which is vastly different from the more accurate subset of data gathered in Australia, but is a more practically applicable figure in our context (29). For the average South African, it can be a strenuous R7500 per month. Factor in schooling and university, and these costs can escalate quickly.

There are also indirect costs of having children that the FPI has not accounted for in their subset, such as housing, transport, childcare, and other activities. Thus, the actual costs may be substantially higher. Registrars are privileged to be in an upper spectrum of earning, as evidenced by an equally enthusiastic tax bracket. Yet this does not preclude financial strain.

Financial stressors can greatly impact a Registrar's work. Research from the United States looking into major stressors on mental health in Registrars showed that depression, cynicism, and lack of empathy were inevitable consequences of a poor financial situation, leading to many supplementing their income with after hour work in order to make amends (21). This is regardless of whether registrars are supporting families or not.

There is a scarcity of research comparing expenditures in couples with children and those without, but research evaluating the expenditure of parents shows that a large proportion of funds are allocated toward children (28). It is safe to assume that the financial priorities of a Registrar parent would follow suit.

The implications of this have not been studied. The allocation of finances can have an impact on academic activities, including conferences and courses (21).

GENDER DISPARITY

Traditional parenting roles are still prevalent in modern society, despite attempts at uniformity. The reasons for this are based in historical gender norms, which divide the responsibilities of mother and father into distinct roles that are, in essence, related to gender.

Medicine is known as being a historically male-dominated field. However, decades have passed, and women are equally as prevalent. Half of all medical school graduates are now female, with that number increasing in trend as years go by (30). Although recent statistics in South Africa are unknown at present, research from the University of Cape Town has shown that the number of females in Medicine has been steadily increasing over the years, especially in undergraduate programmes (24, 30). However, specialty training still seems to be male-dominated in South Africa (24).

Studies examining the relationship between male and female registrars and outcomes such as work-life balance, financial security, and career goals have shown significant differences (30). When compared to male registrars, women who were in the Registrar programmes were less likely to be married or have children, and mothers tended to feel more overwhelmed during training and worried more about financial security than their female counterparts (30). In fact, married men displayed a greater amount of happiness and satisfaction with their programmes than married women, although the struggle to balance clinical duties and familial responsibilities were similar, regardless of gender (30).

However, research in the South African context is deficient. Most of the evidence is from North America, where parental leave policies are suggested, but never followed. Payment during maternal leave is not always adhered to, with many programmes allowing unpaid leave. This is one of the largest influences of delayed childbearing among female registrars in the United States (8, 30, 31). While this may not be influential in the South African context, as maternal leave is paid, it is important to acknowledge that there are financial constraints, as this payment is often reduced amongst registrars due to lack of overtime compensation.

Studies done in Gauteng, namely on working mothers in Johannesburg and Pretoria, show that mothers are still involved in the majority of child care (32, 33). Fathers were more involved when the mother was either absent or employed (32, 33). Additionally, due to the large amount of duty and responsibility placed upon our working mothers, emotional burnout and multi-role conflicts have a higher prevalence amongst working mothers than stay-at-home moms (32, 33).

Research done by Wood and Repetti demonstrated that the magnitude of paternal childcare in co-parented homes is largely dependent on the extent of the mother's role and the number and ages of the children (34). It is also evident that the mother plays a far more extensive role in child care, decreasing as children get older and inversely affected by the hours spent at work (34). As such, the more hours the mother works, the more the father would be involved in childcare duties that may traditionally be considered gendered tasks, even in the first three years of a child's life (34). A father's involvement in child care also increases with the amount of male children present in the family (34). The theory behind this interaction may be related to gender construct theories in childhood development, as children learn to interact with their environment and fathers actively seek to pass on skills and independence to male children as per traditional instrumental roles (34). This was not demonstrated in maternal rearing patterns, as consistency was evident to both gendered children, and there is scarcity of research into factors that influence these changes in father-son vs father-daughter interactions. South African social behavioural studies show that children perceive parenting practices to be consistent in both single and 2-parent families (35).

Despite these differences, there does not seem to be any difference between males or females when it comes to work performance and academic achievement, although pregnancy during the programme and the resultant maternity leave may extend time to completion for female registrars (1). Nevertheless, it is important to acknowledge that these differences in attitudes and perceptions do exist, and that a Registrar's experiences and challenges may be influenced by their role as mother or father.

TIMING OF CHILDBIRTH

The time one enters registrar training is often coinciding with the prime years of childbearing. Registrars may wish to start a family, but often this is delayed due to various reasons, such as a younger age, a busy work schedule, a desire not to extend their training period, reduced access to childcare, and financial situation (36, 37). Other reasons that have been cited are the immense burden that being on leave may place on concurrent staff having to take up additional responsibility, and the fear that the high stress, often unforgiving environment of a specialist programme may increase the risk of pregnancy-related complications (36, 37). It is worth noting that in the study in question that investigated these reasons for delaying childbearing during specialty training, only a minority of respondents were satisfied with that choice, pointing to the assumption that the majority may have regretted that decision, and if given the proper support structures, may have considered otherwise (36).

Research from our very own Department of Surgery at the University of Kwazulu Natal corroborates some of this evidence, with female registrars from across several different surgical specialties acknowledging the fact that their occupational and academic commitments were key factors in their delays at starting families, with challenges in maintaining a balance between being a mother and being a registrar (38).

Another important aspect affecting the decision to bear children during training is the support structure offered by the department and faculty (37, 39). While the initial evidence for this barrier was presented in a paper in 1986, recent evidence from last year shows that this still rings true (36, 39). Research shows that a faculty's transparency toward discussing the possibility of pregnancy and support received from programme heads influenced registrars' experiences of pregnancy during training (37, 39). Registrars receiving support had a more favourable outlook on their experience and were more inclined to encourage others to bear children while being a registrar (37, 39).

This evidence is corroborated in a study done in 2009 at the Washington University School of Medicine which looked at different specialties and investigated the hypothesis that greater support would yield greater amounts of registrars choosing to become parents during training (40). This was shown to be true, with supportive leadership, often in the form of a female programme director, resulting in more registrars making the choice to have their children despite the rigorous nature of training (40). It is interesting to note that among this sample, specialties which were identified as supportive in environment and training were obstetrics and gynaecology and paediatrics (40). However, supportive leadership was identified in specialties such as general surgery, ENT, plastic surgery and internal medicine (40). While anaesthetics was included in this survey, the number of respondents was relatively small, although most respondents described their environment and leadership as being non-supportive (40).

Support structures have been identified as an extremely important decision-making factor when it comes to registrars deciding to have children during training, and this is especially prevalent for female registrars. Having the appropriate support structures in place can make the experience of childbearing and parenting more manageable, leading to a greater amount of satisfaction and happiness among registrars.

PREGNANCY AND COMPLICATIONS

The risk of pregnancy related complications during training is an unfortunate reality, as research has shown increased rates of preterm labour, pre-eclampsia, and foetal growth restriction in female physicians when comparing them to wives of male physicians, and significantly higher rates on average when compared to the mean population average (3, 41).

Authors who have noted this phenomenon have also worked to identify the reason behind this, but true evidence is lacking, with suspicion aimed at the strenuous workload that physicians, hence registrars, have to endure, and the later age of pregnancy (3, 42-44). This is based on the assumption that physicians will take the appropriate precautions when it comes to exposure to chemicals, infections, and in the case of the anaesthetist, radiation and gasses (42). This in itself is not based on any new evidence. The research has shown quite conclusively that strenuous occupations involving extensive hours, lifting, and being upright for prolonged periods of time have been associated with a higher risk of preterm labour, prematurity, low birth weight, toxaemia, placental abruption, intrauterine growth restriction, and perinatal mortality (3, 42-44). This correlation increases with greater hours and greater physical stress (42).

It stands to reason that prolonged working hours and high levels of stress are associated with an increase in adverse pregnancy event. The actual number of hours correlating with this burden are unknown and there is no data to show how these hours should be adjusted according to gestational age. However, one study did show that female registrars in the United States were working at least 95 hours per week on average (42). While no evidence of causality can be established, several recommendations mirror the aforementioned assumption, stating that reduced working hours, changes in night call schedules, and maternal leave when required may reduce this risk in registrars, and physicians in general (42).

Suggestions to reduce this additional stress on pregnant women include day-to-day strategies such as opportunities to change posture from standing to sitting, regular lunch breaks, and limiting exposure to infectious disease. Limited work after 31 weeks gestation, structured service coverage plans that cater less demanding rotations as gestation progresses, clinical back-up from 36 weeks without penalizing non-pregnant colleagues, and timely communication of complications with programme directors are additional options. While not exhaustive, these measures may assist with making the working hours of pregnant registrars more manageable and less strenuous.

BREASTFEEDING

One of the many challenges for new mothers is maintaining a breastfeeding nursing schedule while returning back to work. Nowadays, many departments and industries have adapted to allow breastmilk expression to continue at work, with some designating specific areas of the workspace to allow mothers to pump in comfort and store their milk safely.

The literature has, time and again, shown the many benefits of breastfeeding, such as offering immunological protection against allergies and eczema, less gastro-intestinal issues for babies, reduced infection rates, lower risk of Sudden Infant Death Syndrome, increased efficacy of vaccines, improved cognitive development, reduced obesity rates, and improved bonding experience (45). While the benefits for newborns and infants are well-known, breastfeeding benefits the mother as well, reducing the risk of breast and ovarian cancers, aiding with weight loss and uterine contraction, reducing the risk of osteoporosis, acting as a form of natural contraception, and being financially favourable (45).

Physicians have been advocating breastfeeding for decades. Nevertheless, when it comes to sustaining this natural form of nurturing in their own lives, registrar training environments present an almost impossible obstacle. Although many centres do accommodate new mothers, the challenges are still present. It is fairly obvious that in order to continue breastfeeding, new mothers would have to express milk while at work. Research confirms that most workplaces do try to offer a facility to pump breastmilk in comfort, and although not always dedicated exclusively to the process of pumping, there are efforts to provide a comfortable, private area where mothers can express safely (1, 37).

The challenge here is that many registrars are not given the time to actually express, and although areas are designated for expression, they are sometimes not as private as one would need (1, 37). The long-term effect of this is that many registrars, due to the nature of these challenges, have to stop breastfeeding well before they prefer (1, 46-49). This choice is often based on pure logistics and time constraints, but even those registrars who persist despite this are often deterred by inadequate milk supply as unforeseen circumstances lead to them skipping expression intervals (37, 46-48). Other such challenges to breastfeeding include lack of acknowledgement from trade unions, lack of knowledge regarding the legal right to breastfeed at work by both employers and employees and lack of experience when expressing (50).

While attempts are made to provide the environment to accommodate breastfeeding mothers, the practical aspects of accommodating the schedule of breastmilk expression is clearly the biggest obstacle registrars face. Recommendations suggest that scheduled breaks, adequate privacy and refrigerated storage areas are necessary to accommodate breastfeeding mothers in the workplace in order to ensure that they and their children gain the benefits that they so arduously promote (37).

The Code of Good Practice on the Protection of Employees during Pregnancy and After the Birth of a Child published by the South African National Department of Health allows guaranteed breaks of thirty minutes twice per day for the exclusive purpose of breastmilk expression or breastfeeding for the first six months of a child's life, with accommodation to negotiate a less rigid schedule beyond this age (51). With a busy theatre list, preoperative visits, and the occasional unexpected complication, an Anaesthetic registrar's day can be filled with unavoidable clinical or academic duties. Yet these rights are present, and it is important that floor consultants and heads of departments are aware of the registrar's need and preferred schedule. Communication between registrar and senior is integral.

PARENTAL LEAVE

The subject of parental leave not only encompasses leave for new parents, although that is by far one of the more contentious issues raised in the literature, but also the concept of leave for children who are ill or hospitalized for whatever reason. In South Africa, we are privileged to have labour laws put in place to facilitate a parent's leave for the aforementioned reasons (52).
The law differentiates between maternity leave and parental leave. Maternity leave in South Africa allows for four months of unpaid leave, commencing one month before the birth of the child (53). However, as per the Department of Public Service Administration, which services the human resource needs and policies of the government sector, this leave is compensated (54). Thus, new mothers in the registrar programme can still be paid, although the remuneration excludes overtime.

As of the 1st January 2020, the Labour Laws Amendment Act of 2018 has undergone further amendment to include the concept of parental leave, allowing for ten consecutive days of leave for parents not involved in the birth of the child, and ten consecutive weeks for adoptive parents if the child is less than two years old (52). Thus, fathers and adoptive parents can now have more time to support the new mother and nurture the new child. While welcome, the law recognises this leave as unpaid, but once again, Department of Public Service and Administration guidelines compensates new parents accordingly (54). Although as healthcare workers we reap the benefits of these remunerated leave policies, the law allows for compensation from the Unemployment Insurance Fund for private sector employees, and certain industries and employers can allow for paid leave as per their discretion (52, 53).

A difficult question to answer is whether this duration of leave is enough for both parties. Optimal leave recommendations state that for the purposes of maternal health and well-being, six months of leave would be ideal (55). However, for the purposes of infant health and well-being, recommendations favour at least a year of leave, split between both parents if possible (55).

Research doesn't conclusively show a correlation between extending leave and improved infant health, but studies do show that adequate parental leave has been associated with fewer low birth weight and premature infants, fewer infant death rates, increased breastfeeding rates, better infant care and immunizations, longer parent lifespan, better mental health and increased long-term achievement for children (55). Research also shows that a leave duration of less than twelve weeks has been associated with higher rates of maternal depression and anxiety, reduced infant attention and sensitivity, low self-esteem, high work stress and overload, and marital discord (55).

Studies show that adequate paternal leave is associated with reduced family stress, improved gender equality, and more involved parenting, which in turn can impact social, emotional, cognitive, and health outcomes for children and more stable relationships with partners (55). A survey done in Sweden even found a mortality benefit associated with paternity leave, with fathers having a 25 % reduction in mortality when taking 1-2 months of leave after the birth of a new born (56). However, this could be attributed to socioeconomic influences, like higher income, education, and correspondingly better health (55).

Thus the importance of parental leave should not go unnoticed, and although we are below the ideal recommendations for leave periods, South Africa is still making strides in improving this spectrum for employees, including healthcare workers. Nevertheless, in comparison to other countries, we could do better. In countries forming part of the Organisation for Economic Co-operation and Development (OECD), mainly from European nations, the average period of leave is 18 weeks for new mothers, relatively close to our national policy (55). But countries like Bulgaria and the United Kingdom offer leave that is close to one year, although not of all of it renumerated (55). Nations like Japan and South Korea also offer the new father up to one year of leave (55).

Perhaps the biggest discrepancy among these leave policies is with regards to parental leave for non-childbearing parents, as OECD member states offer an average of eight weeks (55). While maternal leave is similar in South Africa compared to OECD nations, it seems that we are still lagging behind regarding paternal leave. Since policy has only recently been amended to recognise paternal leave as part of the Labour Law Amendments Act, it is possible that in the future further adjustments to law may occur in order to recognise that adequate leave is just as necessary for fathers as it is for mothers.

However, we cannot ignore the fact that some of these leave requirements may add to work discord. Therefore, it is important to plan ahead, taking into account rotations that may not accommodate leave. The administrative challenge here is trying to find flexibility, service delivery, and uniformity to training.

SUPPORT STRUCTURES

As previously mentioned, support structures for registrar parents will do much to ease the stressors and challenges associated with navigating the specialisation years. Research into support structures for parents with older children is lacking, but one can assume that part of the support offered new parents can still be of benefit to registrars rotating through a programme with school-going or younger children. One of the major barriers that women identified earlier as being influential to their decision to delay childbirth was the knowledge of extending their training time (36, 37, 39). However, a Paediatric programme in the United States used a novel approach to prevent this from occurring, allowing their registrars a parenting elective during their leave period (31). This non-clinical elective involved prescribed reading activities, topic presentations of parenting-related subjects contemporary to paediatrics, reviewing a parenting book, and attending breastfeeding consults and other tasks as per the registrar's preference (31).

The United States is one of few countries in the world where there is no recognized parental leave policy, and so this type of elective was quite unique in that it offered paid leave for a period of 6-8 weeks, with the option to increase to unpaid leave as needed while conducting the elective and completing tasks at home (31). The end result was that both maternal and paternal satisfaction improved, and registrars were unanimously approving of this non-clinical rotation, which allowed many mothers to complete their training without having to extend their registrar time (31). Due to the addition of non-clinical training in this group, graduation rates had remained unchanged (31).

While parenting electives like the above are excellent ideas, other supportive systems also need to be put into play in order to accommodate registrar parents. In Canada, certain hospital departments forbid overnight calls in pregnant women over 31 weeks of gestation, which certainly complies with the available recommendations to reduce pregnancy associated complications (57). Other parenting friendly support systems in Canada involve limited access to classes for breastfeeding individuals and their infants, and financial exclusion for students and registrars undergoing parental leave for the duration of said leave (57).

Adequate parental leave, an empathetic environment and open discussions, awareness, and acceptance of parenting has been championed as being conducive to allaying several of the fears and challenges that registrar parents undergo during training (31, 57). A proactive approach should be adopted in registrar programmes to develop flexible programmes, innovative technologies (Orthopaedic Registrars in Canada are able to simulate most surgeries via a mobile-based app), and policies to meet the needs of parents (57). Policies aimed at supporting breastfeeding and expression at the workplace and the presence of on-site day care facilities are ideal support structures that have been postulated to mediate the experiences of parents rotating through registrar programmes, mitigating many of the negative aspects of this high stress environment (57).

South African registrar programmes don't offer the option of part-time studying, but registrar programmes in the United Kingdom have been offering this option as far back as 1969 (58). The specifics of part-time training may differ between specialty and region, but on average a full-time registrar may train for a period of 4-5 years before being able to register as a fully trained

specialist (58). Part-time trainees would perform normal working hours that would be equivalent to 60% their full-time colleagues, with overtime hours being renumerated on an ad-hoc basis (58). Completion of training was similar between both groups of registrars, with the only differences being that part-time registrars took longer to complete their programmes and were more inclined to take up part-time consultant posts than full-time posts (58, 59). One of the major reasons for the creation of these part-time training posts was to accommodate female registrars and their domestic responsibilities, namely child-rearing (58-60). The average number of part-time trainees was highly variable between specialty and region, reported at 14-29% of the registrar pool (58, 59). Two specialties that had higher part-time registrars than the mean were psychiatry and anaesthetics (60).

These support structures are highly dependent on the programme heads and the faculty at large, including other registrars (57). Support systems at work are significant, but greater are the support systems at home. Having a caregiver is a necessity for mothers who are registrars, and just as important for fathers if the non-physician spouse also works. Two physician families with children bear a great burden, and choosing the right caregiver is essential in this case. It is also imperative that both parents support each other. Spouses of registrars in training have to pick up most of the responsibilities for child-rearing, and time spent away from home on clinical duties and overtime commitments lend immense strain to the relationship between spouses (61, 62). It is important to recognise this, as impairment in family life, stress and dissatisfaction with registrar training has been shown to go hand-in-hand (61, 62).

Support systems are thus vital for both the registrar's training experience and family life. Registrar training most often occurs in central regions in South Africa, around major cities and commercial hubs. Not all registrars and their families would originate from these centres, and thus a registrar may have to relocate their entire family or may need to leave their families behind in order to pursue their specialty, gravely impacting on the availability of support structures.

In summary, possible support structures include:

Individual-specific solutions – family, friends, parent support groups, part-time learning options and education about its availability, and meticulous planning as far as it is feasible (37)

Programme-specific solutions – mentorship programmes for positive coping behaviours and mechanisms, career support, coaching, positive and satisfying work environments during training, open door policies, supportive return-to-work policies with lighter clinical work and opt-in voluntary clinical work during registrar training (37)

Government-specific solutions – psychological assistance where required, focus on wellness, onsite day care facilities and gym facilities, leave policies

CONCLUSION

Although conflicts exist between being a registrar, functioning as a worker, and ensuring one is the best possible parent to one's children, a balance can be maintained between these roles provided that institutions, programmes, and policies are put into place to support registrars and their duties toward their families. While support from departmental level is welcome, registrars themselves must be aware of their clinical responsibilities and duties and work together with their superiors to ensure that all aspects of their duties are met.

Support systems should be robust enough to accommodate both the registrar and the department at large. It is clear that mothers are still bearing the majority of child caring duty, and we must acknowledge this role that our female registrars play, but not minimise the role of our fathers. Empathy is important. The research shows that being a parent does not have to detract from the contribution one can make as a registrar and the success one can have in future endeavours.

Research in our own field and in our own population of registrars requires further exploration. Yet the current research from other parts of the world and related research locally does present opportunity to look into the challenges experienced by our own registrars, and the prospect to implement strategies and investigate outcomes in terms of registrar satisfaction and work-life balance. The possibility of part-time study should also be explored, as this has been found to be advantageous to the parental situation overseas.

Being the best registrar one can be is an admirable pursuit, and every registrar should aspire to achieve as much as they can during their training for betterment of themselves and their patients. But ultimately, as fulfilling as career and professional success can be, our lasting legacy in this world will most likely come from the people we influence, whether it be our children or others.

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