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ORIGINAL STUDY

What are the determinants for return to work after primary total knee arthroplasty?

Anthony Timmerman, Pieter Berger, Lode Godderis, Hilde Vandenneucker

From the University Hospitals of Leuven, Belgium

Total knee arthroplasty is increasingly performed on patients of working age, although little is known about return to work. This study aims to analyse the return to work percentage in a Belgian population and to identify underlying determinants.

Data was gathered by analysing patients' files and sending a questionnaire to patients aged ≤ 62 years who underwent a total knee arthroplasty between January 2013 and December 2017 in the University Hospitals of Leuven.

A total of 99 patients were included in the study and 66 patients returned to work. Significant factors included preoperative sick leave, availability of job adaptations, employment type and postoperative Knee Society Score.

The return to work percentage of 67% in this Belgian population is slightly lower in comparison with similar studies in other countries. This difference could be driven by Belgium's specific insurance system or due to a lack of clear prescription guidelines for medical doctors.

Keywords : Total knee arthroplasty ; return to work ; determinants.

INTRODUCTION

In the past, osteoarthritis (OA) has been considered to be a simple "wear and tear" process. However, evidence of recent studies shows us that OA is far more complicated than what medical researchers initially assumed. Not only biomechanical factors play an important role in the pathogenesis but proinflammatory mediators and proteolytic enzymes influence the process as well. These factors are responsible for the degradation of the extracellular matrix of the joint tissue, which over time results in tissue destruction and especially the destruction of articular cartilage *(16,18)*. Typical symptoms are joint pain, stiffness and locomotor restrictions, all contributing to decreased mobility *(1)*. If conservative medical treatment fails to alleviate the symptoms sufficiently, total knee arthroplasty (TKA) is considered to be a definitive treatment option in end-stage knee OA *(22)*. The balance of evidence suggests that this procedure is both safe and effective, leading to marked pain relief and functional improvement in patients *(5,29)*.

Epidemiologic studies indicate that two-thirds of the patients diagnosed with knee OA are younger than 65 years *(19)*. The main contributor to knee OA is the prevalence of obesity within the population. In fact, obesity, adding a severe amount of pressure on the knee joints, is the strongest modifiable risk factor for patients *(4)*. As our society has seen a rising

■ Anthony Timmerman, Resident Orthopaedic Surgery
■ Pieter Berger, Dr
■ Lode Godderis, Prof., Dr
■ Hilde Vandenneucker, Prof., Dr.
University Hospitals of Leuven, Belgium.
Correspondence : Anthony Timmerman, University Hospitals of Leuven, Belgium, +32472426540
E-mail : anthony.timmerman@student.kuleuven.be

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incidence of obesity, the number of TKA procedures performed has been increasing, specifically for people under the age of 65 years.*(7,8,15)*. The consequences of patients being at working age at the time of their procedure, which will only increase in the future, are both of major social and economic importance *(13,14)*. This reality is further highlighted considering the fact that people are extending their professional careers due to the postponement of retirement and personal choices *(11)*.

Previous research has shown that not being able to work and not being able to contribute to society can be destructive to the emotional stability and self-confidence of individuals *(3,24)*. Hence, considering the large and increasing population undergoing a TKA during their working age, it is of utmost importance to study the drivers behind the ability to return to work (RTW) after a TKA *(11)*. Previous studies have reported a successful rate of returning to work of 70 to 95% following a TKA procedure, with one outlier of merely 40% *(2,6,9,10,12,17,20,26,27,31)*. A similar study in a French population reported an average time of 17.7 weeks for patients to resume their job *(23)*. The most important predictors for delayed or no RTW are prolonged preoperative sick leave, age, employment type and having a physically knee demanding job *(10,12,17,21,30,31)*.

Experts in Belgium have indicated that the RTW percentage after a TKA procedure might strongly differ from existing studies. An explanation of this difference could be driven by Belgium's insurance system and regulations covering the practice and guidelines of medical doctors. The different insurance system of self-employed people compared to salaried employees might allow for prolonged pre- and postoperative work absence. In addition, the new Royal Decree in Belgium of January 1st 2017 requires medical doctors to guide patients at risk for prolonged work absence to an occupational physician who is responsible to analyse which work-related adaptations could be made to improve the RTW probability. Finally, experts highlight the role of prescription behaviour of doctors in Belgium in general. Doctors might be too loose with prescribing authorised sick leave, often not fully understanding that pre- and postoperative work absence have a negative impact on RTW. However, the medical community could argue that there is a lack of clear and straightforward rules regarding sick leave prescription in Belgium.

The aim of this study is first and foremost to analyse the RTW percentage in patients undergoing primary TKA in our department and secondly to learn more about the impact of different factors driving the return to work after a TKA procedure. An enhanced understanding of this social, medical and economic issue will enable doctors to give more tailored advice to their patients and accordingly reduce the economic burden on Belgian society. As a starting point, our null-hypothesis is that no factor nor a combination of factors will significantly influence RTW.

MATERIALS AND METHODS

To analyse our aforementioned null-hypothesis, a retrospective cohort study approved by the Ethical Commission of the University Hospitals of Leuven was conducted in 2018. The following inclusion criteria were used to compile our dataset :

All surgeries took place in the five-year period between January 2013 and December 2017 in the University Hospitals of Leuven, Belgium.

The patients in our dataset were younger than or equal to 62 years at the time of the knee surgery. Patients within three years of the Belgian retirement age of 65 have been excluded to avoid that our dataset became overpopulated with patients that failed to return to work due to other health related issues driven by age and with patients who bridged this period until full retirement.

Only primary TKA for end-stage osteoarthritis of the knee were included. As a consequence, secondary TKA surgeries were excluded. For patients with bilateral TKA procedures, the first knee surgery was excluded from the dataset.

For obvious reasons, only patients who were employed before their TKA surgery were included in the dataset.

In order to analyse the statistically significant drivers of RTW, we have combined key patient information derived from the patients' files with a proprietary work specific questionnaire.

Based upon previous studies on work participation after a total knee arthroplasty or total hip arthroplasty *(17,26)*, we drafted a list of key patient characteristics to be included in our dataset. From every patients' file, we gathered sociodemographic factors such as age, gender and BMI. Comorbidity of every patient, according to the first three categories of the American Society of Anaesthesiologists physical status classification (ASA), was included. Furthermore, we determined the etiology of the end-stage osteoarthritis of the knee and which type of prosthesis was used. Finally, the pre- and postoperative Knee Society Score (KSS) questionnaires were used as a knee-specific evaluation.

The KSS is a validated scoring system which combines an objective physician-derived component along with a subjective patient-derived component. The system evaluates objective knee parameters – joint motion, alignment and medial/lateral or anterior/posterior instability –, pain symptoms, patient expectations, patient satisfaction and a functional score – walking, standing, standard activities and advanced activities *(25,28)*. With regards to our study, we used postoperative KSS questionnaires that were taken approximately one year after the operation or as close as possible to one year. In the case that the patient's file missed the preoperative questionnaire or whose most recent postoperative questionnaire was taken less than 3 months after the operation, we conducted telephone interviews to retrieve this missing information.

In addition to consulting the patients' files, a questionnaire (Appendix A) focusing on work-related categorical questions was sent to the patients in order to gather more tangible information. Our proprietary questionnaire included questions on employment type, preoperative sick leave, whether the patient returned to work and, if so, at what stage and manner of work resumption (e.g. returned to the same job, returned to another job, part- or full-time). Furthermore, patients were enquired about the physicality of their job, which was described as : light (e.g. a desk job), medium (e.g. nursery or a professional driver) and heavy (e.g. a construction worker). Finally, certain questions pertained to job satisfaction, work-related adaptations made by the employer to ease the return to work process (e.g. allowing working from home, adapt the job to being less physically intensive), marital status and educational qualifications.

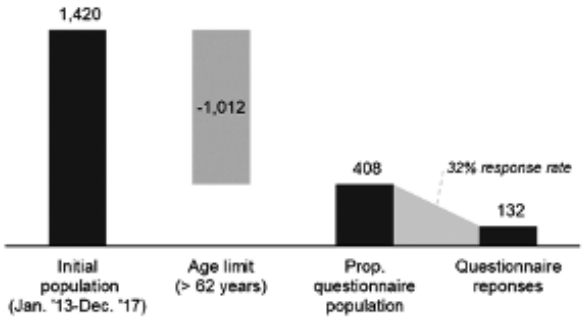

Figure 1. — Overview of success rate on proprietary questionnaire.

In between January 2013 and December 2017, 1,577 TKAs were performed on 1,420 patients in the University Hospitals of Leuven. After applying our pre-set exclusion criteria on age, the total amount was narrowed down to 408 patients. Our proprietary questionnaire was sent out to these 408 patients by mail. In total, 132 patients returned the completed questionnaire, which translates into a response rate of 32% (Fig. 1).

Descriptive and inferential statistics were both done using SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY : IBM Corp.). Mann-Whitney U tests and chi-squared tests were performed to assess significant differences between the return to work group and the group not being able to return to work. The difference between pre- and postoperative Knee Society Scores was examined using Wilcoxon signed ranks tests. In the tests, a significance level of 0.05 was used. Multivariate analysis to identify independent predictors for return to work was conducted.

RESULTS

As highlighted in the methods section, 132 patients returned the completed questionnaire (32% response rate). An additional 9 patients were excluded based on our pre-set exclusion criteria on

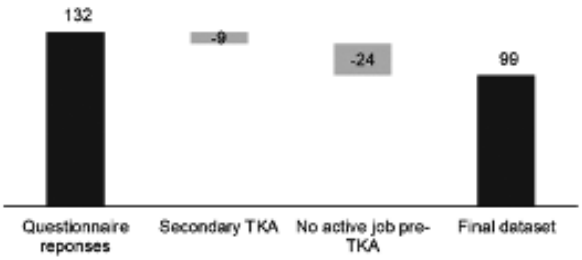

Figure 2. — Overview of excluded patients from final dataset.

secondary TKAs. Furthermore, of the remaining 123 patients, 24 patients were identified as not actively working prior to their TKA surgery. These patients were further excluded to come to our final dataset of 99 patients (Fig. 2).

The mean age of the 99 patients was 55 years. Our youngest patient was 34 years old and the oldest patient was 62 years. Overall, there were 54 men (55%) and 45 women (45%) in our dataset. The mean body mass index (BMI) was 29,3 kg/m^2.

Of our overall dataset, 66 patients returned to work (67%) and 33 patients (33%) were unable to resume their job. Twelve patients had a bilateral procedure, out of which eight patients (67%) returned to work whereas four (33%) failed to resume their job. The below figures provide an overview of the return to work results when looking at sociodemographic factors such as age, gender and BMI (fig. 3A, 3B and 3C).

Table I provides an overview of the pre- and postoperative characteristics included in our statistical analysis, their mean values or number of appearances for the RTW and no RTW group and their significance level. Our statistical analysis indicated that neither age, gender or BMI were statistically significant with p-values of 0.282, 0.087 and 0.664, respectively.

Within our dataset, the patients who resumed their work, took on average 18 weeks (~4.5 months) to do so. The shortest timeframe of our dataset is 2 weeks, whilst the longest was 52 weeks. Most of our patients could resume their full-time job (39 patients, 60%), whilst 18 patients resumed their job part-time and 8 patients successfully managed to find another job. Invalidity and retirement were the predominant reasons for not returning to work after the patients TKA. Other reasons were comorbidities, complications and being fired from the job.

The results of our statistical analysis indicated that preoperative sick leave ($p<0.001$), work-related adaptations ($p<0.001$) and employment type (self-employed vs. salaried employee) ($p=0.026$) were the most statistically significant factors. Figure 4 demonstrates that of the of the 53 patients who had less than 2 weeks preoperative sick leave, 47 patients (89%) resumed work. However, for the 21 patients whose preoperative sick leave lasted over 6 months, only 3 patients (14%) returned to work.

Other factors such as the physical intensity of the job ($p=0.667$), education qualification ($p=0.557$), personal status ($p=0.148$) and comorbidity ($p=0.570$) returned not statistically significant values in our analysis.

Table II provides an overview of the statistical analysis on the Knee Society Scores of our patients. The preoperative ability of the patient to do advanced activities is the only statistically significant driver to determine RTW ($p=0.043$). On the other hand,

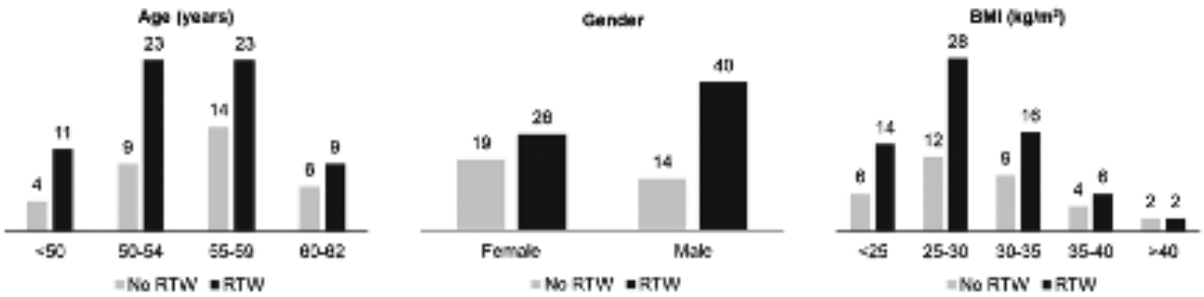

Figure 3A, B, C. — Overview of sociodemographic factors and RTW.

Table I. Characteristics [mean, standard deviation (SD), range, number (n) and percentage (%)] with matching significance level of our study population in total (All) and specified for patients that returned to work (RTW) and failed to return to work (no RTW)

Variable	Unit	All n = 99	RTW n = 66	No RTW n = 33	p-value
Age, mean (SD)	*Years*	54.7 (SD 5.5)	54.2 (SD 5.7)	55.5 (SD 5.1)	0.282 •
Gender, n (%)					0.087 ◊
Male		54 (55%)	40 (61%)	14 (42%)	
Female		45 (45%)	26 (39%)	19 (58%)	
BMI, mean (SD)	kg/m^2	29.3 (SD 5.2)	29.0 (SD 5.2)	29.8 (SD 5.2)	0.664 •
Topology, n (%)					0.832 ◊
Right		43 (43%)	30 (46%)	13 (39%)	
Left		44 (44%)	28 (42%)	16 (49%)	
Bilateral		12 (12%)	8 (12%)	4 (12%)	
ASA classification, n (%)					0.570 ◊
1 = healthy person		27 (27%)	18 (27%)	9 (27%)	
2 = mild systemic disease		64 (65%)	44 (67%)	20 (61%)	
3 = severe systemic disease		8 (8%)	4 (6%)	4 (12%)	
Preoperative sick leave, n (%)					**<0.001** ◊
0-2 weeks		53 (56%)	47 (72%)	6 (20%)	
2-4 weeks		9 (9%)	6 (9%)	3 (10%)	
1-3 months		5 (5%)	3 (5%)	2 (7%)	
3-6 months		7 (7%)	6 (9%)	1 (3%)	
> 6 months		21 (22%)	3 (5%)	18 (60%)	
Time to RTW, mean (range)	*Weeks*	n.m.	18 (2-52)	n.m.	
Reason no RTW, n (%)					
Retirement		n.m.	n.m.	8 (27%)	
Invalidity		n.m.	n.m.	11 (37%)	
Comorbidities		n.m.	n.m.	4 (13%)	
Complications		n.m.	n.m.	5 (17%)	
Dismissal		n.m.	n.m.	2 (7%)	
Type of work resumption, n (%)					
Same work, full time		n.m.	39 (60%)	n.m.	
Same work, part time		n.m.	18 (28%)	n.m.	
Other work, full time		n.m.	4 (6%)	n.m.	
Other work, part time		n.m.	4 (6%)	n.m.	
Physicality of job, n (%)					0.667 ◊
Low		32 (33%)	23 (35%)	9 (28%)	
Medium		32 (33%)	22 (33%)	10 (31%)	
High		34 (35%)	21 (32%)	13 (41%)	
Job satisfaction, n (%)					0.099 ◊
Very pleased		45 (47%)	27 (42%)	18 (60%)	
Pleased		44 (46%)	32 (50%)	12 (40%)	
Not pleased		6 (6%)	6 (9%)	0 (0%)	
Job adaptations, n (%)					**<0.001** ◊
Yes		44 (49%)	38 (58%)	6 (26%)	
Little		9 (10%)	9 (14%)	0 (0%)	
None		36 (40%)	19 (28%)	17 (74%)	
Educational qualifications, n (%)					0.557 ◊
Primary school		8 (8%)	4 (6%)	4 (12%)	
Secondary school		60 (61%)	41 (62%)	19 (58%)	
College		24 (24%)	15 (23%)	9 (27%)	
University		7 (7%)	6 (9%)	1 (3%)	
Employment type, n (%)					**0.026** ◊
Self-employed		14 (14%)	13 (20%)	1 (3%)	
Salaried employee		83 (86%)	52 (79%)	31 (94%)	
Personal status, n (%)					0.148 ◊
Married / living together		80 (81%)	56 (85%)	24 (73%)	
Divorced / living alone		15 (15%)	9 (14%)	6 (18%)	
Widower/widow		4 (4%)	1 (1%)	3 (9%)	
Etiology, n (%)					0.319 ◊
Degenerative		65 (66%)	40 (60%)	25 (76%)	
Traumatic		20 (20%)	15 (23%)	5 (15%)	
Inflammatory		14 (14%)	11 (17%)	3 (9%)	
Type of prosthesis, n (%)					0.876 ◊
S&N Journey II		50 (54%)	33 (54%)	17 (55%)	
S&N Journey Gen 2 PS Oxinium		10 (11%)	6 (10%)	4 (13%)	
Others		32 (35%)	22 (36%)	10 (32%)	

Legend : • *Man-Whitney U test ;* ◊ *Pearson Chi-Squared test ; n.m. = not meaningful*

Table II. Pre- and postoperative KSS scores [mean] of TKA patients of the group that returned (RTW) and did not return to work (no RTW)

	Unit	n	RTW	No RTW	p-value	Mean Δ *(RTW vs. no RTW)*	p-value *(Pre- vs. postoperative KSS)*
Preoperative KSS							
Objective knee parameters (mean, /75)		56	59.2	56.5	0.810 •	2.7	
Symptoms (mean, /25)		74	10.2	11.1	0.426 •	-0.9	
Satisfaction (mean, /40)		75	15.5	16.2	0.810 •	-0.7	
Expectations (mean, /15)		72	12	12.9	0.146 •	-0.9	
Functional activities (mean, /30)		75	16.8	16.3	0.877 •	0.5	
Standard activities (mean, /30)		65	12.8	13	0.914 •	-0.2	
Advanced activities (mean, /25)		74	6.3	4.9	**0.043** •	1.4	
Postoperative KSS							
Timing postoperative questionnaire (mean)	*Months*	71	10.8	11.1			
Objective knee parameters (mean, /75)		53	69.4	65.9	0.209 •	3.5	**< 0.001** ø
Symptoms (mean, /25)		71	17.9	16.3	0.250 •	1.6	**< 0.001** ø
Satisfaction (mean, /40)		71	29.5	24.2	0.065 •	5.3	**< 0.001** ø
Expectations (mean, /15)		71	9.2	8.4	0.363 •	0.8	**< 0.001** ø
Functional activities (mean, /30)		69	23.8	17.1	**0.001** •	6.7	**< 0.001** ø
Standard activities (mean, /30)		68	22	20.1	0.162 •	1.9	**< 0.001** ø
Advanced activities (mean, /25)		61	12.5	8.8	**0.045** •	3.7	**< 0.001** ø

Legend : • *Man-Whitney U test ; ø Wilconox Signed Ranks test.*

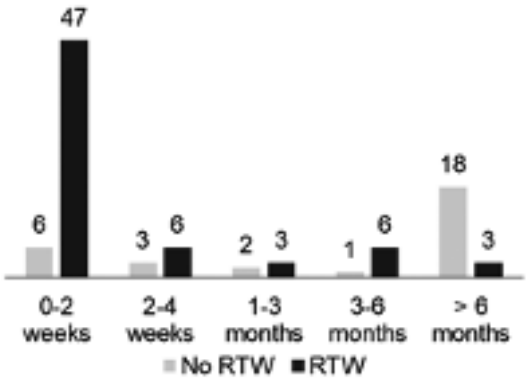

Figure 4. — Overview of preoperative work absence and RTW.

the postoperative ability to do functional activities (p=0.001) and advanced activities (p=0.045) are two statistically significant drivers. Furthermore, we observed that the preoperative KSS was often scored higher for patients who did not return to work in comparison with those who did return to work. Nevertheless, in the postoperative KSS, the group of patients that returned to work scored systematically higher on all the different categories.

Primary osteoarthritis due to degenerative processes was the indication for TKA in 65 of the 99 patients. Secondary osteoarthritis due to trauma was the indication for 20 patients, or due to other reasons, mostly being inflammatory arthropathy, in 14 patients. The etiology of osteoarthritis was not deemed to be a significant factor (p=0.319) to determine return to work ability. The most used type of prosthesis was Smith & Nephew (S&N) Journey II - 50 times of the procedures - followed by S&N Gen 2 PS Oxinium - 10 times - and other types - 34 times - which were mostly the S&N Legion or Hinged type prosthesis. The type of prosthesis was not significant (p=0.876).

The aforementioned significant variables in determining RTW success were used to run a multivariate analysis to identify independent predictors of return to work. However, this statistical test failed to identify a significant variable.

DISCUSSION

Nowadays, knee OA becomes a more prevalent issue for people in their working age *(19)*. In the database of the University Hospitals of Leuven, 408 patients out of 1,420, who underwent a TKA surgery between January 2013 and December 2017, were younger than 62 years. This entails that almost one third of the TKAs is done on people in the midst of their active working life. Given the fact that the ability to work is of major social and economic importance for the patients, understanding the underlying factors that impact the ability to return to work is of utmost importance for doctors and policy makers. As studies show, one of the main contributors to the rising prevalence of knee OA is due to obesity *(4)*. In line with these studies, the mean BMI in our dataset was 29,3 kg/m^2, which provides support for the evidence that the additional amount of pressure on the knee joints due to the extra weight is detrimental for the knee functionalities. Furthermore, by analysing the pre- and postoperative KSS scores, we found supporting evidence that the improvement of the knee functionality post

TKA, ranging from patient-subjective elements to physician-objective parameters such as the mobility and the stability of the knee joint, was significant across all domains. In light of these results, it can be concluded that a total knee arthroplasty operation is a definitive and effective treatment option of end-stage osteoarthritis *(22)*.

Out of the 99 patients in our dataset, 66 patients returned to work. This RTW percentage of 67% is slightly lower in comparison with similar studies that found RTW percentages of 70% to 95% *(2,6,9,10,12,17,20,26,27,31)*. A potential explanation of this difference could be driven by Belgium's specific insurance system of independent employees and salaried employees, which has an impact on the prolonged pre- and postoperative work absence, and the lack of clear prescription guidelines for medical doctors. Our study shows that for those patients that do return to work, it takes them on average 18.0 weeks. This result is completely in line with a similar study conducted in France, which reported an average time of 17.7 weeks for patients to resume their job *(23)*. However, we would like to state that one must remain cautious to compare return to work data from different countries. Legal retirement ages, social well-being, working methods, pension regulations and cultural mindset regarding work vary widely across countries and continents.

One of the most important drivers impacting the return to work chances in our dataset was the duration of the preoperative work absence, hereby rejecting our null-hypothesis. For example, for patients who took 0 to 2 weeks of preoperative work absence, the RTW percentage was 89%. This percentage is significantly higher than 14%, which was the RTW percentage for patients who took more than 6 months of preoperative work absence. A potential explanation for this result could be twofold. On one hand, a patient with little work absence prior to their TKA remains in their daily work rhythm and environment. One could understand that a patient who was absent for 6 months prior to their TKA started to become detached not only from its daily routine and employer but also lacked the social interaction which a job often provides. On the other hand, given the lack of clear government policies and guidelines, Belgian doctors might be too loose when prescribing sick leave. Given the fact that the duration of preoperative sick leave is a key driver to determine the return to work success rate, we support future research to analyse whether operating patients before their osteoarthritis forces them to take sick leave would improve their chances to return to work.

A person's employment type – self-employed vs. salaried employee – proved to be an additional key driver of determining the RTW probability. Self-employed patients reported a RTW percentage of 93%, which is in sharp contrast with salaried employees, who showed a RTW percentage of 63%. It is a known reality that self-employed people are less socially protected in terms of paid sick leave and pension arrangements. This statement is also supported by the results of our study, which shows that the proportion of self-employed people who took 0-4 weeks of preoperative work absence (79%) was higher compared to salaried employees (60%).

Apart from the employee, there is also a key role for the employer in this topic of return to work. The flexibility of an employer and the length he is willing to go to accommodate a patient in his RTW process was a significant driver in our study. Certain work-related adaptations such as allowing patients to partly work from home in their start-up phase and returning to a less physical intensive role are a major factor in determining a patient's RTW probability. For patients that had an employer who offered ways to ease the return to work process, the RTW rate was 86%. However, if the employer offered no alternatives regarding RTW circumstances, only 53% of the patients successfully resumed their job. This outcome provides an interesting insight in the RTW debate. An employer should be aware of the positive role it can play in the RTW process of its employees after a TKA. Furthermore, this finding emphasises the importance of the new Royal Decree of January 1st 2017 in Belgium. As mentioned in the introduction, this encourages medical doctors to guide patients at risk for prolonged work absence to an occupation physician who is responsible to analyse which work-related adaptations could be made to improve the return to work probability.

We were unable to find support in our analysis for certain drivers that came out as statistically

significant factors in determining RTW in other studies. This however should not be interpreted as a counterproof that these factors are not significant. It simply states that we could not find supporting evidence in our population that these were significant drivers. One study illustrated that age was strongly associated with return to work and highlighted the importance of different age groups *(27)*. Other studies found that gender was a significant factor regarding RTW *(12,30)*. Another important factor to highlight is the physical intensity of the job, which is also proven to be an important factor in other studies *(10,12,27)*.

The uniqueness of this study lies in the fact that it is the sole study that examines return to work determinants after a total knee arthroplasty in Belgium. Numerous potential factors and determinants have been examined in order to get a clear understanding of the drivers behind work resumption.

One could argue that our study contains the following unavoidable limitations. The missing data, which was retrieved through telephone interviews whenever possible, could have been affected by recall bias. With regards to the response rate of our proprietary questionnaire, we were able to achieve a response rate of 32% which allowed us to create an initial dataset of 132 patients. Nonetheless, ideally a higher response rate is favourable for the statistical analysis. Another factor which we would have liked to include in the determinants of RTW is the motivation of the patient *(6,21)*. However, this was deemed too difficult due to the retrospective aspect of the study. Not being able to evaluate whether the decision to retire after TKA surgery was already made prior to the surgery rather than being forced to retire due to an inability to work, was another constraint. In line with this, we were not able to explore whether TKA surgery had been postponed until retirement was favorable.

However, if researchers want to further broaden the society's understanding of the RTW process, we suggest the following ideas. A prospective study, which would also include the patient's motivation, would further broaden our understanding on the different variables driving RTW.

In conclusion, this study highlights that pre-operative sick leave, work-related adaptations and employment type are important drivers for return to work in a patient population undergoing TKA. These results can be an aid for medical professionals and health care providers in decision-making concerning return to work after TKA.

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APPENDIX A. Proprietary work specific questionnaire

Personal information

Name: _____
Surname: _____
Date of birth: _____

Questionnaire

1. Were you working prior to surgery?
   - o Yes
   - o No
2. Were you able to resume work postoperatively?
   - o Yes
   - o No
3. In case you've answered "Yes" on question 2, after how many weeks were you able to resume work? … weeks
4. In case you've answered "Yes" on question 2, what type of work resumption did you accomplish?
   - o Same work, full time
   - o Other work, full time
   - o Same work, part time
   - o Other work, part time
5. Did the result of the operation live up to your expectations?
   - o Yes
   - o No
6. How long did you have to cease work prior to surgery? *
   - o 0-2 weeks
   - o 1-3 months
   - o > 6 months
   - o 2-4 weeks
   - o 3-6 months

   * In case you want to note a border value, please mark the earliest value. For example, when you ceased working exactly 2 weeks prior to surgery, please fill in 0-2 weeks instead of 2-4 weeks.
7. How physically knee intensive was your job? **
   - o Low
   - o Medium
   - o High

   ** Low: Sedentary work (for example desk work, …)
   Medium: Being active (for example nurse or driver, …)
   High: Lifting heavy objects (for example construction worker, …)
8. How satisfied were you with the work you did?
   - o Very pleased
   - o Pleased
   - o Not pleased
9. Did you have enough work-related support or was there a possibility to make work-related adaptations?
   - o Yes
   - o Little
   - o None
10. What is your employment type?
    - o Self-employed
    - o Salaried employee
11. What is your personal status?
    - o Married or living together
    - o Divorced or living alone
    - o Widow or widower
12. What are your educational qualifications?
    - o Primary school
    - o College
    - o Secondary school
    - o University