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UNIwersYTET MEDYCZNY
IM. PIASTÓW ŚLĄSKICH WE WROCLAWIU

Wydział Nauk o Zdrowiu

Anna Prokopowicz

**Ocena poziomu lęku u położnic w kontekście
elastyczności psychologicznej**

**Assessment of the level of anxiety in post-partum women
in the context of psychological flexibility**

Rozprawa na stopień naukowy doktora z dziedziny nauk medycznych
i nauk o zdrowiu, w dyscyplinie nauki o zdrowiu

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Wrocław 2023

Podziękowania

„Zdarzyło mi się niegdyś ujrzeć w lesie rano
Dwie drogi; pojechałem tą mniej uczęszczaną -
Reszta wzięła się z tego, że to ją wybrałem”.*

Fragment wiersza „Droga nie wybrana” – Roberta Frosta

P.S.

Legenda dla wtajemniczonych: * w moim przypadku był to Las Mokrzański ☺

Dziękuję wszystkim, których napotkałam na naukowej drodze, „mniej uczęszczanej”.
Jest to droga wyboista, pełna niespodzianek i zwrotów akcji. Bez Waszej inspiracji,
motywacji i wsparcia mogłabym zawrócić na drogę „nieznośnej lekkości bytu”.

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I. Streszczenie

Wstęp: Elastyczność psychologiczna (EP) jest bazą, która ma szerokie zastosowanie i znaczenie dla jakości życia i zdrowia w różnych populacjach. Jej wyższe zasoby pomagają jednostce prowadzić bogate, wartościowe życie, pomimo dolegliwości związanych z doświadczaniem bólu, lęku lub stresu pandemicznego. Wyższa EP ma związek z lepszym samopoczuciem psychicznym i fizycznym jednostki. Okołoporodowe objawy lęku są powszechne oraz mają istotne znaczenie dla jakości życia matek oraz ich potomstwa w dalszej i bliższej perspektywie. W polskich szpitalach lęk kobiet w położu nie jest poddawany rutynowo ocenie. Personel medyczny nie dysponuje prostym narzędziem do jego pomiaru. Wysoki lęk okołoporodowy może prowadzić do zaburzeń lękowych u kobiet po porodzie. Jak dotąd nie zanotowano badań nad związkiem lęku z elastycznością psychologiczną u kobiet po porodzie.

Cel pracy: Zbadanie związku poziomu lęku z elastycznością psychologiczną u kobiet po porodzie oraz walidacja numerycznej skali lęku (ang. the Numerical Rating Scale for Anxiety – NRS-A). Dodatkowym celem było zbadanie progu wykrywalności wysokiego lęku w tej populacji na skali NRS-A.

Materiał i metody: Badaniem objęto polskie kobiety po porodzie na oddziale położniczym w Uniwersyteckim Szpitalu Klinicznym we Wrocławiu. Dane zostały zebrane w okresie od grudnia 2020 do kwietnia 2021. Badanie miało charakter prospektywny. Pacjentki zostały poproszone o wypełnienie kwestionariuszy oceniających poziom lęku, bólu, EP w dwóch pomiarach: w pierwszej i w drugiej dobie po porodzie. W celu zbadania rzetelności i trafności NRS-A, skalę tą porównano z wystandaryzowanym narzędziem do pomiaru poziomu lęku-stanu (STAI-S) używanym wyłącznie przez psychologów.

Wyniki: Wykazano, że EP ma ujemny związek z lękiem i bólem polskich kobiet po porodzie. Najsilniej ujemnie EP korelowała z lękiem jako cechą ($\rho = -0,659$; $p < 0,001$). Oba konstrukty psychologiczne wyjaśniły ok. 13% wystąpienia ryzyka zaburzenia lękowego u kobiet w położu. Dodatkowo w obu pomiarach uzyskano wysokie dodatnie korelacje (w pierwszej dobie $\rho = 0,807$, w drugiej dobie $\rho = 0,778$; $p < 0,001$) pomiędzy STAI-S a poddanym walidacji NRS-A. Oszacowano wartość 3,5/10 na skali NRS-A jako próg wskazania wysokiego lęku u kobiet po porodzie.

Wnioski: EP jest ważnym konstruktem psychologicznym związanym ze stanem psychicznym i fizycznym kobiet po porodzie. Zatem zwiększenie EP u kobiet po porodzie można uznać za ważny cel środków zapobiegawczych i interwencyjnych. Rutynowy pomiar lęku rzetelną

i trafną numeryczną skalą NRS-A może być wykorzystany do identyfikacji pacjentek z ryzykiem zaburzenia lękowego w celu udzielenia im wsparcia emocjonalnego we wczesnym porożu.

Słowa kluczowe: elastyczność psychologiczna; ból; lęk; depresja; COVID-19; opieka w okresie okołoporodowym; opieka w porożu; opieka neonatologiczna; poróg; wynik skierowany na potrzeby pacjenta; wsparcie emocjonalne

II. Abstract

Introduction: Psychological flexibility (PF) is a base that has a wide application and significance for quality of life and health in various populations. Its higher resources help the individual live a rich, worthwhile life despite experiencing pain, anxiety or pandemic stress. Higher PF is associated with better mental and physical well-being of an individual. Perinatal symptoms of anxiety are common and important for the long-term and short-term quality of life of mothers and their offspring. In Polish hospitals, the anxiety of women in the puerperium is not routinely assessed. In addition, medical staff do not have a simple tool to measure this anxiety. High perinatal anxiety can lead to anxiety disorders in women after childbirth. Until now, no studies have been identified that report the relationship between anxiety and psychological flexibility in postpartum women.

Objective: To investigate the relationship between anxiety and psychological flexibility in women after childbirth and to validate the numerical anxiety scale, that is the Numerical Rating Scale for Anxiety (NRS-A). An additional goal was to test the detection threshold of high anxiety in this population on the NRS-A scale.

Material and methods: The study included Polish women after childbirth in the obstetric ward of the University Teaching Hospital in Wrocław. The data were collected from December 2020 to April 2021. The study was prospective in nature. Patients were asked to complete questionnaires that evaluated anxiety, pain, and psychological flexibility in two measurements: on the first and on the second postpartum day. To test the reliability and validity of the NRS-A, this scale was compared with a standardized state anxiety measure (State-Trait Anxiety Inventory – State, STAI-S) used only by psychologists.

Results: The study showed that EP was negatively associated with anxiety and pain in Polish women after childbirth. EF showed the strongest negative correlation with trait anxiety ($\rho = -0.659$; $p < 0.001$). Both psychological constructs explained about 13% of the risk of occurrence of anxiety disorder in women in the puerperium. Furthermore, both measurements showed high positive correlations ($\rho = 0.807$ on the first day, $\rho = 0.778$ on the second day; $p < 0.001$) between STAI-S and NRS-A which was subjected to validation. The value of 3.5/10 on the NRS-A scale was estimated as the threshold for indicating high anxiety in postpartum women.

Conclusions: PF is an important psychological construct related to the mental and physical state of women after childbirth. Thus, increasing EF in women after childbirth can be considered an important goal of preventive and intervention measures. Routine measurement

of anxiety with a reliable and accurate NRS-A scale can be used to identify patients at risk of an anxiety disorder in order to provide them with emotional support in the early puerperium.

Keywords: psychological flexibility; pain; anxiety; depression; COVID-19; care in the perinatal period; care in the puerperium; newborn care; puerperium; result directed at the patient's needs; patient-reported outcome; emotional support

III. Wykaz skrótów

AAQ-2 – Kwestionariusz Akceptacji i Działania (*ang. AAQ-2 Acceptance and Action Questionnaire-2*)

ACT – Terapia Akceptacji i Zaangażowania (*ang. Acceptance and Commitment Therapy*)

APGAR – skala od 0 do 10 służąca do oceny stanu noworodka w pierwszych minutach po porodzie (*ang. Activity, Pulse, Grimace, Appearance, Respiration*)

COVID-19 (*ang. Corona-Virus-Disease-2019*)

EP – Elastyczność Psychologiczna (*ang. Psychological Flexibility – PF*)

GAD – zaburzenie lękowe uogólnione (*ang. General Anxiety Disorder*)

HADS-A – Podskala lęku w Szpitalnej Skali Lęku i Depresji (*ang. Hospital Anxiety and Depression Scale-Anxiety, HADS*)

NICE (*ang. National Institute for Health and Care Excellence*)

NRS – numeryczna skala bólu od 0 do 10 (*ang. the numerical rating scale*)

NRS-A – numeryczna skala lęku od 0 do 10 (*ang. the numerical rating scale for anxiety*)

PI – brak EP lub niska EP (*ang. Psychological Inflexibility*)

PNA – lęk okołoporodowy (*ang. perinatal anxiety*)

PWE – Potrzeba Wsparcia Emocjonalnego (*ang. Need for emotional support – NES*)

„ROOMING-IN” – oddział położniczy funkcjonujący w systemie samoopieki: „noworodek przez całą dobę przebywa na sali ze swoją mamą”

STAI – Inwentarz Stanu i Cechy Lęku (*ang. State-Trait Anxiety Inventory*)

VASA – skala wizualno-analogowa od 0 do 100 (*ang. the visual analogue scale for anxiety*)

IV. Wstęp

Okołoporodowe objawy lęku i nastroju są powszechne oraz mają istotne znaczenie dla jakości życia matek i ich potomstwa w dalszej i bliższej perspektywie. Wysoki lęk okołoporodowy może prowadzić do zaburzeń lękowych i afektywnych. W poroegu kobiety doświadczają lęku uogólnionego, napadów paniki, zgłaszają zaburzenia obsesyjno-kompulsywne, a także stres pourazowy¹⁻³.

Badanie Silverwood i wsp.⁴ wykazało, że zrozumienie z czym wiąże się lęk okołoporodowy (ang. perinatal anxiety – PNA) u położnic, w jaki sposób się manifestuje oraz jakie może mieć konsekwencje zdrowotne jest wśród pracowników ochrony zdrowia niewystarczające. Pracownicy deklarują, że brakuje im wiedzy na temat tego, czym jest „normalny lęk okołoporodowy” oraz prostych narzędzi do jego przesiewowej oceny, a pacjentki z PNA deklarują, że nie dostają wystarczającego wsparcia od personelu. W polskich szpitalach lęk kobiet w poroegu nie jest poddawany rutynowo ocenie. Natomiast wnioski z badań prowadzonych w populacjach kobiet w okresie okołoporodowym zawierały rekomendacje, dla wysokiej jakości systemów opieki perinatalnej, dotyczące rutynowej kontroli poziomu lęku i nastroju w tym okresie^{5,6}.

W związku z powyższym, aby oceniać lęk matek w poroegu, personel położniczy powinien dysponować prostym, a jednocześnie trafnym oraz rzetelnym narzędziem do pomiaru tej emocji.

W praktyce klinicznej najczęściej stosowanymi skalami do oceny poziomu lęku są skale opisowe, zawierające pozycje wielokrotne, takie jak: HADS (ang. Hospital Anxiety and Depression Scale), Beck Anxiety Index, STAI (ang. State-Trait Anxiety Inventory)⁷. Wypełnienie ich przez pacjentki w poroegu może być utrudnione z powodu braku czasu w związku z opieką nad noworodkiem. Dodatkowo ich interpretacja wymaga posiadania wykształcenia psychologicznego czy szkolenia psychometrycznego.

W badaniach naukowych dotyczących lęku stosowana jest prosta numeryczna, skala wizualno-analogowa od 0 do 100 (ang. Visual Analogue Scale for anxiety – VASA)⁸, a także od 0 do 10 (ang. the Numerical Rating Scale for anxiety – NRS-A)^{9,10}. Numeryczna skala od 0 do 10 dla badania lęku (NRS-A) przypomina powszechnie stosowaną w praktyce klinicznej skalę NRS (ang. the numerical rating scale) - do oceny bólu¹¹. Do tej pory nie poddano walidacji NRS-A w populacji kobiet w poroegu.

Standardowe (powszechne) badanie lęku wśród kobiet po porodzie może mieć znaczenie nie tylko do selekcji zaburzeń lękowych u pacjentek w tym okresie, ale przede

wszystkim do zaspokojenia potrzeby wsparcia emocjonalnego kobiet oraz do normalizacji emocji lęku w położu. Według stanowiska twórców Terapii Akceptacji i Zaangażowania (ang. Acceptance and Commitment Therapy – ACT) lęk, podobnie jak ból, strata, żal oraz rozczarowanie są nieodłącznymi elementami ludzkiego życia. Nie muszą one jednak zaburzać jakości życia jednostki, jeśli nauczy się ona je rozpoznawać oraz reagować na nie z uważnością i akceptacją¹². Głównym celem ACT jest zwiększenie elastyczności psychologicznej – EP (ang. Psychological Flexibility – PF) – konstrukt, który jest odpowiedzialny za umiejętność jednostki do podejmowania działań zgodnych z wartościami, niezależnie od doświadczanego fizycznego lub psychicznego dyskomfortu (np.: bólu, lęku). EP definiowana jest jako akceptująca, otwarta, świadoma postawa, mająca kontakt z chwilą obecną oraz kontakt ze swoimi emocjami, wrażeniami i myślami. Wyższa EP ma związek z lepszym samopoczuciem psychicznym i fizycznym jednostki. Niska EP powiązana jest z nieakceptacją trudnych myśli i emocji, co prowadzi do unikania ich doświadczania jako sposobu kontrolowania wydarzeń wewnętrznych, co często skutkuje impulsywnym krótkoterminowym odejściem od ważnych życiowych wartości¹²⁻¹⁴.

Narzędziem do pomiaru unikania doświadczania trudnych emocji jest kwestionariusz AAQ-2 (ang. AAQ-2 Acceptance and Action Questionnaire-2)¹⁵, w polskiej adaptacji nazwany Kwestionariuszem Akceptacji i Działania¹⁶. AAQ-2 zostało docenione za wysoką spójność wewnętrzną i wiarygodność w różnych typach chorób psychopatologicznych oraz jest powszechnie stosowane w różnych grupach docelowych¹⁷⁻²¹. Jak dotąd nie zanotowano badań nad związkiem lęku z unikaniem doświadczania u kobiet po porodzie.

V. Cele pracy

Cel główny:

1. Zbadanie związku lęku z elastycznością psychiczną u kobiet po porodzie.

Cele szczegółowe pracy:

1. Przedstawienie przeglądu badań dotyczącego związku elastyczności psychicznej z lękiem, depresją, bólem przewlekłym oraz ze stresem wywołanym pandemią COVID-19 w różnych populacjach.
2. Zbadanie trafności i rzetelności numerycznej skali lęku NRS-A w grupie kobiet po porodzie.
3. Określenie progu wykrywalności wysokiego lęku na skali NRS-A.
4. Porównanie lęku położnic w grupach niezależnych: deklarujących potrzebę wsparcia emocjonalnego vs deklarujących brak potrzeby wsparcia emocjonalnego podczas pobytu w szpitalu w dobie pandemii COVID-19.
5. Obliczenie predykcji ryzyka zaburzenia lękowego za pomocą pojedynczych zmiennych objaśniających, takich jak: niska elastyczność psychiczna oraz lęk jako stan i lęk jako cecha.
6. Porównanie lęku, elastyczności oraz bólu pacjentek w grupach niezależnych: kobiety po porodzie naturalnym vs kobiety po cięciu cesarskim, pierwsiastki vs wieloródki oraz pacjentki z wysokim ryzykiem wystąpienia zaburzenia lękowego vs pacjentki z niskim ryzykiem wystąpienia zaburzenia lękowego.

VI. Materiał i metody badań

Część 1

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Health in the context of psychological flexibility and acceptance and commitment therapy, *Medical Research Journal*, 2021, vol. 6, nr 3, s. 249-253, DOI:10.5603/MRJ.a2021.0032

Na podstawie literatury przedmiotu, przedstawiono model elastyczności psychologicznej w powiązaniu z samopoczuciem psychicznym i fizycznym jednostki. Następnie dokonano przeglądu baz naukowych według słów kluczowych: elastyczność psychologiczna, ból, lęk, depresja, stres, pandemia, COVID-19. Poddano analizie współzależność elastyczności psychologicznej z bólem przewlekłym, lękiem i depresją oraz ze stresem wywołanym pandemią COVID-19 w różnych populacjach.

Część 2

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study, *Ginekologia Polska*, 2022, vol. 93, nr 9, s. 686-694, DOI:10.5603/gp.a2021.0197

Prokopowicz, A.; Stanczykiewicz, B.; Uchmanowicz, I. Anxiety and psychological flexibility in women after childbirth in the rooming-in unit during the COVID-19 pandemic, *Journal of Midwifery and Women's Health* 2022 Dec 24. doi: 10.1111/jmwh.13445. Epub ahead of print.

W niniejszym podrozdziale zaprezentowano zarys metodologii przeprowadzonego badania, na podstawie którego napisano dwie powyższe prace oryginalne. Szczegółowy opis zawarty jest w załączonych publikacjach.

Badaniem objęto 200 polskich kobiet po porodzie na oddziale położniczym funkcjonującym w systemie „rooming-in” w Uniwersyteckim Szpitalu Klinicznym we Wrocławiu. Dane zostały zebrane w okresie od 27.12. 2020 do 30.04.2021.

Kryteria włączenia:

- zgoda na udział w badaniu,
- wiek \geq 18 roku życia,

- urodzenie o czasie (tj., ≥ 37 tygodni ciąży), pojedynczego noworodka w stanie dobrym (od 8-10 punktów na skali Apgar), zarówno przez cięcie cesarskie, jak i naturalnie,
- dobry stan matki po porodzie (pacjentka uruchomiona, bez cewnika moczowego, bez drenu, z fizjologiczną utratą krwi w trakcie porodu, zakwalifikowana do przekazania na oddział położniczy wraz z noworodkiem), a także brak stwierdzonej psychicznej, umysłowej, ortopedycznej dysfunkcji w wywiadzie.

Kryteria wyłączenia:

- wiek < 18 roku życia,
- pacjentki po porodzie przedwczesnym,
- matki, których stan noworodka był oceniony poniżej 8 punktów w skali Apgar,
- pacjentki, których stan po porodzie nie pozwalał na zajmowanie się dzieckiem na oddziale położniczym,
- pacjentki, u których stwierdzono w wywiadzie: zaburzenie psychiatryczne, niepełnosprawność umysłową oraz ortopedyczną.

Badanie miało charakter prospektywny. Pacjentki zostały poproszone o wypełnienie kwestionariuszy w dwóch pomiarach: w pierwszej dobie (T1 – po 24 h od porodu do 48h) i w drugiej dobie po porodzie (T2 – od 48 h od porodu do 72h). Dane dotyczące stanu położniczego, przeszłości chorobowej pacjentki, stanu zdrowia noworodka pozyskane zostały z historii choroby pacjentki i noworodka.

W obu dobach pacjentki wypełniły NRS-A, STAI-S oraz PWE. Dodatkowo w dobie pierwszej po porodzie (T1) wypełniły STAI-T, AAQ-2 oraz w drugiej dobie (T2) HADS-A, NRS oraz skale dla specyficznych poporodowych lęków. W celu zbadania rzetelności i trafności numerycznej skali lęku – NRS-A porównano ją z wystandaryzowanym narzędziem do pomiaru lęku-stanu (STAI-S).

Za brak danych uznano niekompletne wypełnienie kwestionariuszy lub ich niewypełnienie. W T2 zanotowano 13 braków dla lęku mierzonego HADS-A. Z powyższego powodu, obliczenia, w których brany będzie pod uwagę kwestionariusz HADS-A będą wykonywane na grupie 187 kobiet.

Średnia wieku dla grupy 200 kobiet wyniosła 32 (od 21 do 43 lat). Większość pacjentek (83%) deklarowała wyższe wykształcenie, dobrą sytuację materialną (87,1%) oraz pożycie w związku formalnym (78%). W badanej grupie 56% pacjentek urodziło dziecko drogą cięcia cesarskiego, a 44% naturalnie.

Średnia wieku dla 187 pacjentek wyniosła 32 lata (od 22 do 43). Większość pacjentek (83,4%) deklarowała wyższe wykształcenie, dobrą sytuację materialną (88,8%) oraz pozycję w związku formalnym (78,6%). Ponad połowa kobiet (56,1%) urodziła drogą cięcia cesarskiego, a 43,9% urodziła naturalnie. Swoje pierwsze dziecko urodziło 49,7% matek, a kolejne dziecko (wieloródki) 50,3%.

Narzędzia badawcze

Pomiar lęku: (HADS-A; STAI, NRS-A, specyficzne lęki poporodowe)

Szpitalna Skala Lęku

Polska adaptacja kwestionariusza Szpitalna Skala Depresji i Lęku (Hospital Anxiety and Depression Scale) autorstwa Zigmonda i Snaitha umożliwia ocenę poziomu lęku i depresji pacjentów w warunkach szpitalnych. Lęk można ocenić używając niezależnej podskali Szpitalna Skala Lęku (Hospital Anxiety and Depression Scale-Anxiety – HADS-A) składającej się z 7 pytań. Za każde można uzyskać od 0 do 3 punktów – maksymalna ilość punktów to 21. Punkt odcięcia dla zaburzenia lękowego rozpoczyna się powyżej 10 punktów. Alfa Cronbacha dla HADS-A w badaniu wyniosło – 0,829.

Inwentarz Stanu i Cechy Lęku

Polska adaptacja Inwentarza Stanu i Cechy Lęku STAI (ang. State-Trait Anxiety Inventory) składa się z dwóch oddzielnych skal: X-1 dla lęku jako stanu (STAI-S) oraz X-2 dla lęku jako cechy (STAI-T). Obie skale składają się z 20 pytań. Całkowite ciągłe wyniki wahają się od minimum 20 do maximum 80. Im wyższy wynik łączny, tym wyższy jest poziom lęku. Alfa Cronbacha w badaniu własnym wyniosło dla lęku stanu (STAI-S) – 0,959 oraz dla lęku cechy (STAI-T) – 0,854.

Numeryczna skala lęku (ang. Numerical Rating Scale for anxiety – NRS-A) oraz specyficzne lęki poporodowe (skala od 0 do 10)

Numeryczna skala lęku (Numerical Rating Scale Anxiety – NRS-A) od 0 do 10 (0 – oznacza brak lęku, a 10 – największy lęk jaki można sobie wyobrazić) używana jest do pomiaru lęku jako stanu. Dodatkowo pacjentki zostały poproszone o podanie subiektywnych poziomów (na skali od 0 do 10) specyficznych lęków, takich jak lęk: przed samodzielną opieką nad dzieckiem w dzień, przed samodzielną opieką nad dzieckiem w nocy, przed płaczem dziecka, przed zachorowaniem na COVID-19.

Pomiar elastyczności psychologicznej

Do zbadania elastyczności psychologicznej (EP) posłużyła polska adaptacja: Kwestionariusza Akceptacji i działania (ang. AAQ-2 Acceptance and Action Questionnaire-2). AAQ-2 składa się z 7 stwierdzeń typu: „Boję się swoich uczuć”, „Emocje są przyczyną problemów w moim życiu”. AAQ-2 bada najczęściej występującą tendencję unikania doświadczania w życiu dorosłym osoby badanej. Odpowiedzi udzielane są na siedmiostopniowej skali (1-nigdy nie prawdziwe, do 7-zawsze prawdziwe). Minimalna ilość uzyskanych punktów 7, maksymalna 49. Wyższe wyniki wskazują na niższą EP. W opisie badań skrót określający niższe wartości kwestionariusza AAQ-2 będzie oznaczany jako EP (lub wyższa EP) (ang. Psychological Flexibility - PF), natomiast wyższe wyniki jako brak EP (lub niska EP) (ang. Psychological Inflexibility - PI). Alfa Cronbacha dla AAQ-2 wyniosło – 0,857.

Numeryczna skala do pomiaru bólu

Numeryczna skala (ang. Numerical Rating Scale – NRS) od 0 do 10, powszechnie używana jest do pomiaru bólu, gdzie 0 – oznacza brak bólu, a 10 – największy ból jaki można sobie wyobrazić.

Potrzeba wsparcia emocjonalnego (PWE)

Potrzebę wsparcia emocjonalnego – PWE (ang. Need for emotional support NES) oceniono za pomocą pojedynczego pytania własnego autorstwa: „W mojej obecnej sytuacji potrzebuję wsparcia emocjonalnego”. Odpowiedzi udzielane były na 6-stopniowej skali Likerta (1–„Zdecydowanie się nie zgadzam”, 2 – „Nie zgadzam się”, 3 – „Trochę się nie zgadzam”, 4 – „Trochę się zgadzam”, 5 – „Zgadzam się” oraz 6 – „Zdecydowanie się zgadzam”). Na potrzebę wyselekcjonowania pacjentek, które deklarują potrzebę wsparcia emocjonalnego vs nie potrzebują wsparcia, odpowiedzi od 1 do 3 włączono do grupy pacjentek nie potrzebujących wsparcia emocjonalnego, a odpowiedzi od 4 do 6 do grupy pacjentek deklarujących potrzebę wsparcia emocjonalnego.

Analiza statystyczna

Do analizy statystycznej wykorzystano program IBM SPSS Statistics 26 (IBM Corp., Armonk, NY, USA). Otrzymane wartości statystyk wykazały, że wszystkie zmienne wykazały istotne rozbieżności od rozkładu normalnego. Do porównania wyników w grupach niezależnych wykorzystano testy U Manna-Whitneya, a w grupach zależnych Wilcoxon. Związek między zmiennymi policzono za pomocą korelacji rho Spearmana. Do predykcji

ryzyka zaburzenia lękowego użyto jednoczynnikowej regresji logistycznej (z R-kwadrat Nagelkerkego) oraz analizy ROC (ang. Receiver operating characteristic). Przyjęto istotność pomiarów dla wartości $p < 0,05$.

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VII. Cykl publikacji

Podstawą niniejszej pracy doktorskiej jest cykl trzech publikacji:

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Health in the context of psychological flexibility and acceptance and commitment therapy, *Medical Research Journal*, 2021, vol. 6, nr 3, s. 249-253, DOI:10.5603/MRJ.a2021.0032

Praca przeglądowa

MEiN = 100,00

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study, *Ginekologia Polska*, 2022, vol. 93, nr 9, s. 686-694, DOI:10.5603/gp.a2021.0197

Praca oryginalna

MEiN = 40,00

IF = 1,216

Prokopowicz, A.; Stanczykiewicz, B.; Uchmanowicz, I. Anxiety and psychological flexibility in women after childbirth in the rooming-in unit during the COVID-19 pandemic, *Journal of Midwifery and Women's Health* 2022 Dec 24. doi: 10.1111/jmwh.13445. Epub ahead of print.

Praca oryginalna

MEiN = 100,00

IF = 2,891

Lp	Opis bibliograficzny	IF	Punkty
1	Prokopowicz Anna , Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Health in the context of psychological flexibility and acceptance and commitment therapy, <i>Medical Research Journal</i> , 2021, vol. 6, nr 3, s. 249-253, DOI:10.5603/MRJ.a2021.0032	-	100
2	Prokopowicz Anna , Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study, <i>Ginekologia Polska</i> , 2022, vol. 93, nr 9, s. 686-694, DOI:10.5603/gp.a2021.0197	1,216*	40
3	Prokopowicz A[nna] , Stańczykiewicz B, Uchmanowicz I. Anxiety and Psychological Flexibility in Women After Childbirth in the Rooming-in Unit during the COVID-19 Pandemic. <i>Journal of Midwifery & Women's Health</i> 2022 Dec 24. doi: 10.1111/jmwh.13445. Epub ahead of print.	2,891*	100
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Health in the context of psychological flexibility and acceptance and commitment therapy

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ABSTRACT

Losing health is associated with an imbalance in one or more areas that are important to an individual. The spectacular achievements of modern medicine have made people believe that the only source of health is the treatment and reduction of symptoms. The ability to function in conditions of unavoidable discomfort can bring back an individual's loss of balance. The article aims to present the model of Psychological Flexibility and its relationship with selected health aspects of an individual. According to the statement of the founders of Acceptance and Commitment Therapy (ACT), suffering in various forms is an integral part of human life. In situations of discomfort that cannot be avoided, and with which an individual must learn to function on a daily basis over a longer period of time, ACT proposes the development of Psychological Flexibility, which strengthens the psyche and body's immune resistance. The Covid-19 pandemic, which has been going on for a year, has disrupted the macro balance. At the micro-scale, this balance can be disturbed by chronic disease states such as pain, anxiety and depression. The above conditions reduce the quality of life and health. Psychological Flexibility shapes a set of skills that improve the quality of life and also affect balance despite perceived discomfort. Psychological Flexibility is a base that has a wide application and significance for the quality of life and health. Its higher resources help an individual live a rich, worthwhile life despite suffering from pain, anxiety or pandemic stress.

Key words: psychological flexibility, pain, anxiety, depression, pandemic, Covid-19

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Introduction

Health is one of the most important values for individuals and the whole society [1]. There are over a hundred definitions of health [2]. They are often based on various, separately treated planes: biological, psychological, or social. Health can be presented as the absence of disease and suffering; as biopsychosocial well-being; as a state of the balance; as a function; as a social role; as the ability to adapt; or as a value norm or asset [3]. These planes are linked by the holistic, still valid, definition of the World Health Organization (WHO), according to which health is perceived as “a state of total physical, mental and social well-being” [4].

Regardless of the adopted definition, loss of health is associated with an imbalance (distraction of well-being) in one or more areas that are important for an individual. This, in turn, makes it difficult, or impossible, to

function, and deteriorates the quality of life [5]. Western civilization glorifies the absence of physical and mental discomfort. The spectacular achievements of modern medicine have made people believe that the source of health is treatment and the reduction of symptoms [6]. In the field of health psychology, prophylaxis and health promotion, effective methods are being sought, which are based on scientific evidence, and which improve the health level of individuals and the entire society [7].

Scientific research shows that Acceptance and Commitment Therapy (ACT) is effective in promoting healthy behavior, while at the same time improving the quality of life and mental well-being of cardiological, cancer, and irritable bowel syndrome patients who suffer from anxiety and affective disorders [8–13].

ACT belongs to the “third wave” of the Cognitive Behavioral Therapy (CBT) trend. Both CBT and ACT base their effectiveness on scientific evidence [14]. According

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to the statement of the founders of Acceptance and Commitment Therapy, suffering, disease, pain, loss, grief, fear and disappointment are inseparable elements of human life [15]. However, they do not have to interfere with an individual's quality of life if they learn to respond to them with awareness. ACT teaches a person to lead an attentive and conscious life and changes the relationships of an individual with undesirable symptoms in such a way that their occurrence does not interfere with leading a life that is consistent with values. The "side effect of therapy" is often the reduction of symptoms. In turn, the main goal of ACT is to increase PF — a construct that is responsible for the ability of an individual to act in line with values, regardless of the experienced physical or mental discomfort (e.g. pain, anxiety) [15, 16]. PF negatively correlates with such personality trait as neuroticism, whereas it positively correlates with an openness to experience and self-control. PF influences a person's health globally and helps to smoothly maintain a balance between important areas in their life, which appear to be the specific mental resilience of an individual [17]. Therefore, PF seems to be important in the context of an individual's resource in situations of discomfort that cannot be avoided, and also in which one has to learn to function on a daily basis over a longer period of time.

This article presents the model of Psychological Flexibility (PF) and its relationship and protective effect on selected health aspects of an individual. The theoretical assumptions of ACT and the PF model are presented on the basis of leading references in this field [15, 16]. Additionally, the relationship between PF and chronic pain, anxiety and depression, as well as stress caused by the Covid-19 pandemic, was analyzed. Scientific databases were reviewed using the following keywords: psychological flexibility, pain, anxiety, depression, stress, pandemic, Covid-19.

Psychological flexibility and acceptance and commitment therapy

PF is a construct that is responsible for the ability of an individual to freely choose an action, the direction of which is compatible with the goals and values of the individual, regardless of the experienced difficult thoughts, emotions and sensations. PF has developed in the area of Contextual Behavioral Science (CBS), the source of which has its origin in the classical behavioral analysis [18]. The main goal of CBS is the scientific prediction of behavior in a specific context and its modification [19]. Through the prism of PF, thoughts, emotions and experiences do not have a good or bad label, with their evaluation taking place in a specific context for a given situation. The lower the PF, the more the person, under the influence of an experienced discomfort (e.g. anxiety

or pain) reduces (slows down) their actions (while losing the sense of their meaning) [15]. The higher the level of PF, the more an individual can consciously choose a course of action that is consistent with their goals and life values, regardless of their emerging thoughts, emotions or impressions. Moreover, they can persevere in this action [15].

Participation in Acceptance and Commitment Therapy increases and strengthens PF. Through its motivational nature, ACT helps to make an individual aware of which values mean a lot to them and also provides direction to their life [16]. It teaches careful observation and acceptance of one's emotions, thoughts and feelings, which in turn improves the quality of life and functioning of an individual with psychiatric, somatic or social problems [20–22]. Meta-analyses have shown that ACT has a greater potential to induce psychological benefits and effectiveness in the long term perspective when compared to classical CBT methods [23, 24].

The PF model consists of six processes, such as acceptance, cognitive defusion, flexible focus on the present moment, self-as-context, values, and engaged action. They are responsible for shaping PF and taking action in accordance with the values adopted in life. In turn, their opposition, i.e., avoidance of experience, cognitive fusion, lack of flexible attention, the conceptualized self, the lack of awareness of values, passivity, impulsiveness, and persistent avoidance are responsible for adaptive abilities [15]. PF shapes psychological skills or a set of skills that have a wide application and go beyond a single state of mental or physical health [22]. For example, it appears as a mechanism that explains the influence of personality on the well-being of an individual [25]. The correlation of PF with personality traits, which influence the quality of life, shows the possibility of developing adaptive resources along with the development of PF, regardless of the basic structure of personality [26]. A higher PF is associated with a better mental well-being of obese people, with a higher quality of life in people with type I diabetes, and it also positively correlates with a higher mental resistance of people after trauma [27–29].

Psychological flexibility versus pain

The Central Statistical Office (CSO) in Poland [30] lists among the six most common chronic diseases/health diseases: chronic back, neck and joint pain. Chronic pain can be caused by damage to the nervous system, undetectable pathology, or psychogenic pain. This type of pain proves the changes that have taken place in the body and becomes a disease that is often very difficult to treat [31]. Chronic pain affects all areas of an individual's life. It may contribute to the development of depression [32]. If it is not possible to eliminate it,

an important element of functioning will be adapting to bothersome symptoms. Patients report a slowdown in life as a consequence of chronic pain. Pain accompanied with anxiety, as a variable closely related to fear and avoidance, has a significantly detrimental effect on the quality of life of patients [33]. Some data show that it is not the level of pain, but the attitude towards it, that affects the functioning of a person [34].

The chronic low back pain (CLBP) model assumes that fear of pain is related to avoiding painful movements. It was originally developed to explain the transformation of acute back pain into chronic pain [35]. The CLBP model is currently used for research that links the subject of anxiety and pain with the development of disabilities of a broader scope than just chronic back pain [36].

A study on a sample of 252 people with chronic pain showed that PF is an important mediating factor in the relationship between symptoms (pain and anxiety intensity) and the functioning of the respondents. People with lower PF showed sickness absenteeism much more often than people with higher PF [37]. Similar results were obtained in other studies concerning the relationship between PF and the adaptive functioning of people with chronic pain. Higher PF, reflected in acceptance, mindfulness, cognitive defusion, and acting on values, was responsible for more frequent use of health care and more frequent undertaking of jobs [38]. The studies of Rhodes [39] found that chronic pain patients with a higher PF used fewer opioids. Various PF measures have proved to be significant mediators of therapeutic treatment in patients with chronic pain [40]. The participation of patients with chronic pain in ACT increases their PF and acceptance of pain, improves their daily functioning, and reduces their level of depression [41].

Psychological flexibility versus anxiety and depression

In Poland, in 2018, neurotic disorders (approx. 30%) and affective disorders (approx. 20%) were ranked in the first two places among people suffering from mental and drug-free behavior disorders [42]. Coexisting anxiety and depression are responsible for the mental condition of patients - exacerbating the chronicity and severity of any psychiatric and somatic diagnosis, reducing the quality of life, hindering professional development, and increasing the risk of suicide [43–45]. In a longitudinal study, anxiety predicted subsequent depression, which was measured after 12–14 years [45].

There is evidence that higher PF and adaptive emotional schemas show a negative correlation with anxiety [46]. A study on a group of HIV-infected people indicates that higher PF is responsible for lower mental health rates (lower levels of anxiety and depression),

as well as a higher quality of life [47]. Higher PF scores were reliable predictors of mental health (lower anxiety and depression) in homosexual men who underwent screening for anal cancer risk. It should be added, however, that the relationship between PF and mental health in this study was mediated by Difficulty Identifying and Describing Feelings (DIDF). Low levels of PF may increase DIDF, and this, in turn, leads to higher levels of anxiety and depression [48].

A study by Masuda and Tully [49] indicated that lower PF in the American student population was associated with higher levels of depression and anxiety. Psychological Inflexibility (PI) in Turkish students partially mediates in the relationship between anxiety against negative evaluation and psychological susceptibility associated with a wide range of mental disorders (with the dominant style of avoidance reactions) [50]. The anxiety of public speaking reported by the student correlated with lower PF in the domains of openness to experience and higher cognitive fusion [51].

Psychological flexibility versus functioning during the Covid-19 pandemic

In Poland, more than two and a half million infections and over 60,000 deaths have been recorded since the beginning of the Covid-19 pandemic (from March 4, 2020, to this day) [52]. Undoubtedly, the Covid-19 pandemic has had a negative impact on the mental health of citizens, which is measured by the level of anxiety and depression [53, 54]. Research indicates PF as an important factor in mental resilience to stress caused by the current Covid-19 pandemic. PF negatively correlates with anxiety, depression, insomnia and suffering from the pandemic, and positively correlates with well-being and coping with avoidance [55, 56]. A lack of PF increases the risk of suicide in the pandemic era [57], whereas a greater openness to experience, and behavioral awareness (as measures of PF) were associated with lower general and peri-traumatic distress in the context of the pandemic [58].

A study conducted during the lockdown in Italy on a group of 1,035 adults showed that global PF and its four subtypes (self-as-context, defusion, values, and engaged action) reduced the destructive impact of Covid-19 risk factors (such as duration of isolation, increase in domestic violence and unhealthy behavior, and infection of relatives with Covid-19) on mental health [59]. A longitudinal study based on 3 measurements and conducted during the lockdown in Spain showed that the lack of PF in the first measurement indirectly predicted symptoms of mental health in the last measurement through autoregressive parallel paths and directly in the same measurement [60]. A study of patients with chronic pain during the Covid-19 pandemic

showed that PF processes such as pain acceptance, self-as-context, and engaged action can play a protective role in demonstrating anxiety and avoidance [61].

An American study of family functioning during pandemic stress found that a lack of parental PF was associated with depression, Covid-19 stress, discord between family members, toxic parenting, and greater suffering for both parents and their children. Similarly, higher PF measures were associated with greater family cohesion and the use of constructive parenting strategies such as inductive, democratic behavior and positive and supportive parenting practices [62].

Conclusions

PF is a factor of mental resilience that has wide applications and is relevant to the quality of life and health. Its higher resources help an individual live a rich, worthwhile life despite suffering from pain, anxiety or pandemic stress. The strength of this construct is that it can be developed and strengthened within ACT, which in turn may affect all areas of mental, physical and social health, including self-care and raising children [21, 41, 63–65]. The advantage of ACT is its empirical, scientific verifiability. ACT can be used by psychologists, psychotherapists, doctors, and other people involved in improving the health of individuals [22]. Scientific and diagnostic work may be facilitated by the availability of free, reliable research tools that are validated on the Polish population [66, 67]. Therefore, it is worth considering the study of PF on the Polish population and the use of ACT intervention techniques that can improve the health condition of Polish society in times of a pandemic.

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Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study

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ABSTRACT

Objectives: Perinatal anxiety is important for the quality of life of mothers and their offspring. The Numerical Anxiety Rating Scale (NRS-A) allows the level of anxiety in patients to be quickly assessed. Until now, the NRS-A has not been validated in the postpartum female population. The aim of this study was to assess the accuracy and reliability of the NRS-A when compared with the reference methods for measuring anxiety.

Material and methods: The observational prospective study included a group of 200 adult postpartum females of a hospital maternity ward. The validity between the Numerical Rating Scale for Anxiety (NRS-A) and the State and Trait Anxiety Inventory (STAI), and between the NRS-A and the Hospital Anxiety and Depression Scale (HADS-A), was determined. The detection thresholds for high anxiety were examined.

Results: Both measurements showed a positive high correlation between the NRS and STAI-S (in T1 $\rho = 0.807$, in T2 $\rho = 0.778$; $p < 0.001$), and a comparable relationship of both scales (STAI-S and NRS-A) with the STAI-T and HADS-A. The analysis of the ROC curve indicated that the value of the NRS-A equal to 3.5/10 can be considered the threshold that allows for a differentiation of patients with high anxiety from those without high anxiety in the studied population.

Conclusions: The NRS-A is an accurate tool for measuring anxiety in Polish postpartum females. Routine anxiety measurements using the NRS-A can be used to identify people with high anxiety in order to provide emotional support to patients in the early postpartum period.

Key words: anxiety; postpartum period; patient-oriented outcomes; emotional support

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INTRODUCTION

The perinatal symptoms of anxiety and mood are common and important for the long-term and short-term quality of life of mothers and their offspring. High perinatal anxiety can lead to anxiety and affective disorders. In the postpartum period, women experience generalized anxiety disorder and panic attacks. In addition, obsessive-compulsive disorder, as well as acute and post-traumatic stress disorder symptoms may occur [1–4].

In populations of women evaluated in the perinatal period, anxiety and depressive disorders coexist [5, 6]. In the group of women diagnosed with postpartum depression, anxiety disorders were also found in 82.9% of them,

and vice versa — in women with primary anxiety disorders, coexisting depressive disorders were found [7]. Some evidence shows that the incidence rate of perinatal anxiety is about 22%, which is higher than the incidence rate of perinatal depression (13%) [8].

Conclusions from studies conducted on populations of women in the perinatal period include recommendations for high-quality prenatal care systems regarding the routine control of anxiety and mood levels in this period [9, 10]. The Polish standard of perinatal care only recommends examining the perinatal risk of depression [11]. Moreover, it is standard in hospital care that patients are informed about their right to pain treatment. However, there

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are no such recommendations for anxiety, even though studies show that pain coexists with anxiety [12–14].

The study of anxiety among women in the postpartum period may not only be important for the selection of anxiety and depressive disorders in perinatal patients, but above all for the description and normalization of anxiety emotions in this population. According to the authors of Acceptance and Commitment Therapy, anxiety, as well as pain, loss, regret and disappointment, are inseparable elements of human life [15]. However, in order to discuss maternal anxiety in the postpartum period on the basis of scientific evidence, maternity staff should have a simple and relevant tool to measure it. A study by the Silverwood team (2019) [16] shows that there is insufficient understanding of what perinatal anxiety is among healthcare professionals. Employees declare that they lack knowledge concerning “normal perinatal anxiety”, as well as simple tools for its screening. In turn, patients with perinatal anxiety declare that they do not receive sufficient support. The recommendations of the National Institute for Health and Care Excellence (NICE) include a provision concerning the recommendation of the assessment of the support needed by women with mental health problems, as well as the women at risk of developing them [17].

Commonly used scales to assess anxiety levels include descriptive scales, such as: Hospital Anxiety and Depression Scale (HADS) for measuring anxiety (A) and depression (D), Beck Anxiety Inventory, and State-Trait Anxiety Inventory (STAI) for measuring two separate anxiety concepts: state anxiety (S) and trait anxiety (T) [12, 18]. STAI-S, due to its high accuracy and reliability in various populations, is the recommended tool for measuring state anxiety [18, 19]. The results of testing the level of state anxiety are sensitive to the variability of anxiety, which depends on situations related to external stimuli [20]. The listed questionnaires contain multiple items. The filling in of them by postpartum females may be difficult due to the lack of time that is related to having to care for their newborns. In the case of limited time possibilities, it is reasonable to use quick measurement scales, e.g., a single 0 to 10 numerical rating scale (NRS), which is commonly used to measure pain. Despite its simplicity, its validity and reliability have also been demonstrated [21]. The twin NRS for anxiety (NRS-A) has been tested in the dental and pediatric patient population [22, 23]. Until now, the NRS-A has not been validated in the postpartum female population.

Therefore, the aim of this study is to answer the question of whether NRS-A is a valid and reliable measurement tool for assessing state anxiety in postpartum women in the first days of puerperium when compared to the reference STAI-S method. An additional goal is to test the detection threshold of high anxiety using the NRS-A, as well as to compare the anxiety of patients in two independent groups: those

declaring a need for emotional support versus those declaring no need for emotional support.

MATERIAL AND METHODS

Population and settings

The place of study was the maternity ward in the 2nd Department of Gynaecology and Obstetrics of the Wrocław Medical University, Poland. 200 women during their first and second postpartum days were included in the study. The data was collected in the period from 27/12/2020 to 04/30/2021. Adult patients, who gave conscious consent to the study and who gave birth at term (i.e., ≥ 37 hbd) to a single newborn in good condition (from 8–10 Apgar points), both by caesarean section and naturally, were enrolled in the research. The condition for inclusion in the study was also the good condition of the mother after childbirth (patient mobilized, with physiological blood loss during childbirth, no blood transfusion, qualified to “rooming” (maternity ward) with their newborn, and with no diagnosed mental, psychological, or orthopaedic dysfunctions).

Data concerning the patient’s postpartum condition, medical history, and the health of their newborn were obtained from the medical history of the patient and newborn. The study was confidential. Access to the collected data was secured, and each of the studied participants was given an identification number, which enabled the data to be anonymized.

Tools

Numerical Rating Scale for anxiety (NRS-A)

The raw anxiety scores on a numerical scale from 0 to 10 were categorized as: 0 – not anxious, 1–3 — little/slightly anxious, 4–6 — medium/fairly anxious, 7–9 — a lot/very anxious, 10 — worst imaginable/extremely anxious [22, 23].

State-Trait Anxiety Inventory (STAI)

The STAI, which was developed from its original version, was adapted to the Polish population by the Spielberger team [20, 24]. It consists of two separate scales, which both have 20 questions. The total continuous scores range from a minimum of 20 to a maximum of 80. The higher the total score, the higher the level of state anxiety [at a given time on the X-1 scale (STAI-S)] and trait anxiety [on the X-2 scale (STAI-T)]. The obtained results are interpreted on three levels: low anxiety (1–4 sten), moderate anxiety (5–6 sten) and high anxiety (7–10 sten). The cut-off point for high state anxiety starts above 40 [20]. Cronbach’s alpha in our study was for state anxiety (STAI-S) tested on the first day (T1) — 0.956 and second day (T2) — 0.958, and for trait anxiety it was (STAI-T) — 0.850.

Hospital Anxiety and Depression Scale (HADS)

The HADS questionnaire by Zigmond and Snaith (1983) [25] enables the level of anxiety and depression of patients

Table 1. Individual measurements of the observed variables during the study, and the number of correctly completed questionnaires for a group of 200 postpartum females

Variable	Questionnaire	Measurement T1	Measurement T2
State anxiety	STAI-S-X1	X (n = 200)	X (n = 200)
Trait anxiety	STAI-T-X2	X (n = 200)	–
State anxiety	NRS-A	X (n = 200)	X (n = 200)
Anxiety	HADS-A	–	X (n = 187)
Need for emotional support	NES	X (n = 200)	X (n = 200)

X — presence of measurement; – — lack of measurement

in hospital conditions to be assessed. The Polish adaptation of the questionnaire was made by the Majkowicz team (2000). [26] Anxiety can be assessed using the independent subscale of the Hospital Anxiety and Depression Scale-Anxiety (HADS-A), which consists of seven questions. For each of them, 0 to 3 points (the maximum number of points is 21) can be achieved. The cut-off point for an anxiety disorder is a score greater than 10 points. Cronbach's alpha for HADS-A in the present study — 0.829.

Need for Emotional Support (NES)

The need for emotional support was tested using the question developed by authors: "In my current situation, I need emotional support." The answers were given on a 6-point Likert scale (1 — "I strongly disagree", 2 — "I disagree", 3 — "I disagree a little", 4 — "I agree a little", 5 — "I agree", and 6 — "I strongly agree"). Single-question scales that fit the specific clinical situation of patients are used in scientific publications [27]. For the purpose of selecting patients who declared a need for emotional support vs those that did not need support, answers from 1 to 3 were included in the group of patients who did not need emotional support, and answers from 4 to 6 were included in the group of patients who declared a need for emotional support.

Bioethics committee

A written informed consent to participate in the study was obtained from all the patients. The study was approved by the Bioethics Committee at Wrocław Medical University, Wrocław, Poland (KB No. 747/2020).

The presentation of measurements at both timepoints

After giving informed consent to participate in the study, the patients were asked to fill in questionnaires at two timepoints: on the first postpartum day (T1) and on the second postpartum day (T2). On both days, the patients completed NRS-A, STAI-S-X1 and NES. Additionally, on the first postpartum day (T1), they completed STAI-T-X2, and on the second day (T2) they completed HADS-A. The

individual measurements over time are presented in Table 1. Incomplete, or blank questionnaires were considered as missing data. In T2, there were 13 deficiencies for anxiety measured using HADS-A.

Statistical analysis

The IBM SPSS Statistics 26 program (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Due to the non-Gaussian distribution of all the variables, non-parametric tests were used for the analysis. The relationship between NRS-A, STAI and HADS-A is shown by Spearman's correlation coefficient (ρ). The non-parametric Mann-Whitney U test was used to compare independent groups, and the Wilcoxon test was used to compare dependent groups. NRS-A thresholds of differentiation with regards to anxiety or non-anxiety (defined by the reference STAI-S cut-off point equal to 40, and HADS equal to 10) were determined based on Receiver Operating Characteristic (ROC) curves and their related area under the ROC curve (AUC). The significance of the measurements was assumed for the value of $p < 0.05$.

The sample size, with an estimated mean effect size and an alpha error probability of 0.05, was determined according to literature [23].

Participants

In the study, 200 women aged $Mdn = 32$ (range: 21–43) took part. Most of the patients (83%) declared higher education, a good financial situation (87.1%) and living in a formal relationship (78%). In the study group, 56% of patients gave birth to a child by caesarean section (Tab. 2).

RESULTS

The descriptive statistics for the tools used in the study are presented in Table 3. The Wilcoxon test showed no differences in the measurements between the first (T1) and the second (T2) day in the case of anxiety measured using STAI-S ($Z(199) = -0.658$; $p > 0.5$) and in the case of anxiety measured using NRS-A ($Z(199) = -1.928$; $p > 0.5$).

Correlations of comparable strength were shown between the dependent measurements (T1 with T2). They

were calculated separately for NRS-A ($\rho = 0.708$; $p < 0.001$) and for STAI-S ($\rho = 0.701$; $p < 0.001$).

Correlations between the NRS-A, STAI and HADS-A measurements

The correlations between STAI-S and NRS-A were positive and high in both measurements ($p < 0.001$). They amounted to in T1 $\rho = 0.807$, in T2 $\rho = 0.778$. A graphical representation of the relationship between STAI-S and NRS-A for individual measurements is shown in Figure 1.

Table 2. Characteristics of the studied group	
Parameter	Total (n = 200)
Age	
20–30 years old	81 (40.5%)
31–40 years old	113 (56.5%)
41–50 years old	6 (3%)
Type of childbirth	
Natural childbirth	88 (44%)
Childbirth by caesarean section	112 (56%)
Education	
Higher	166 (83%)
Secondary	19 (9.5%)
Vocational	11 (5.5%)
Lower secondary	3 (1.5%)
Primary	1 (0.25%)
Financial status	
Good	175 (87.5%)
Average	23 (11.5%)
Poor	2 (1%)
Marital status	
Formal relationship	156 (78%)
Informal relationship	33 (16.5%)
Single	11 (5.5%)

The correlation between STAI-T and NRS-A, and STAI-T and STAI-S, as well as between HADS-A and NRS-A and HADS-A and STAI-S showed positive correlations of similar strength and significance ($p < 0.001$) for both scales (Tab. 4).

Cut-off points on the NRS-A scale

Analysis of the ROC curve for the 200 patients suggested a value of 3.5/10 on the NRS-A scale as the threshold for high anxiety (defined by the reference STAI-S cut-off of 40) in both measurements (in T1 AUC = 0.886; $p < 0.001$ and in T2 AUC = 0.860; $p < 0.001$). Both measurements showed acceptable values of sensitivity (T1 — 0.803; T2 — 0.702) and specificity (T1 — 0.843; T2 — 0.849) (Fig. 2).

The analysis of the ROC curve for 187 patients suggested a value of 4.5/10 on the NRS-A scale for T1 and T2 (for STAI-S the value of 42.5/80 in T1, and the value of 50.5/80 in T2) as a threshold to indicate the risk of an anxiety disorder (defined by the HADS-A reference cut-off of 10). The model adjustment values on the first day (T1) for NRS-A were: AUC = 0.852; $p < 0.001$; sensitivity = 0.895; and specificity = 0.678; and for STAI-S they were: AUC = 0.842; $p < 0.001$, sensitivity = 0.947, and specificity = 0.617. The model adjustment values on the second day (T2) were for NRS-A: AUC = 0.880; $p < 0.001$, sensitivity = 0.842, and specificity = 0.792; and for STAI-S: AUC = 0.863; $p < 0.001$, sensitivity = 0.711, and specificity = 0.846 (Fig. 3).

Levels of anxiety by the need for emotional support

From the group of 200 patients, 101 (50.5%) declared a need for emotional support on the first day (T1), and 96 (48.0%) patients on the second day (T2). The Mann-Whitney U test showed, in both the NRS-A and STAI-S scores, a higher ($p < 0.001$) level of anxiety in the group of women declaring a need for emotional support when compared to the group of women not declaring a need for emotional support (Tab. 6).

Table 3. Descriptive statistics for NRS-A, STAI, HADS-A, and NES in T1 and T2					
Questionnaire and the measurement (T)	n	Mdn	IQR	Min	Max
NRS-A_T1	200	4	4	0	10
NRS-A_T2	200	3	3	0	10
STAI-S_T1	200	42.5	16	20	79
STAI-S_T2	200	42	17.75	20	77
STAI-T_T1	200	37	10	21	68
HADS-A_T2	187	7	6	0	20
NES_T1	200	4	3	1	6
NES_T2	200	3	3	1	6

HADS-A — Hospital Anxiety and Depression Scale-Anxiety; IQR — interquartile range; Mdn — median; Min — minimum value; Max — maximum value; n — number of subjects; NES — need for emotional support; NRS-A — Numerical Rating Scale for Anxiety; STAI-S — State and Trait Anxiety Inventory-State Anxiety

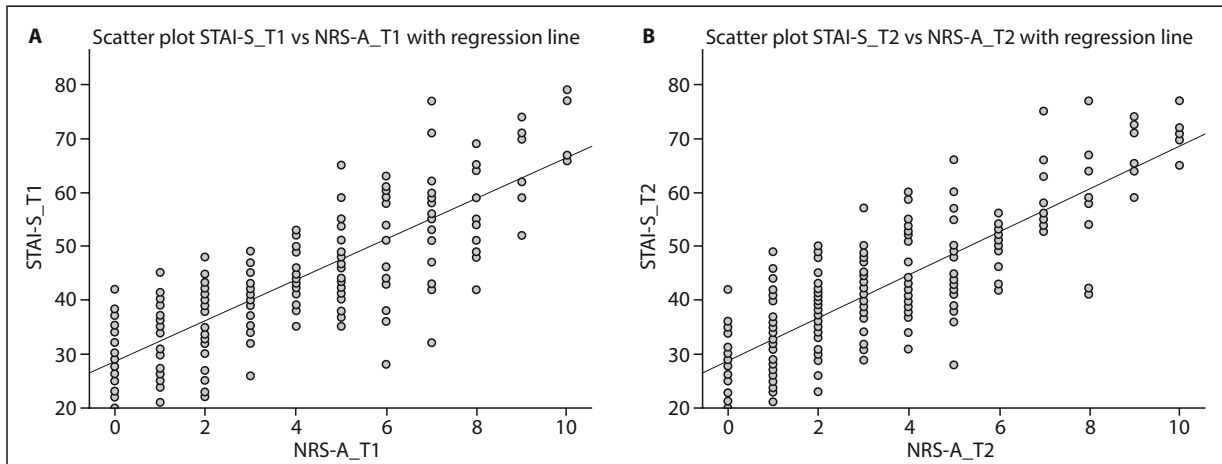


Figure 1. Scatter plots for correlations between STAI-S and NRS-A for both timepoints; **A.** Scatter plot for STAI-S_T1 vs. NRS-A_T1 with a regression line [$Y = 3.769 (\pm 0.193) \cdot X + 28.670 (\pm 0.927)$; $p < 0.001$; $R^2 = 0.658$]; **B.** Scatter plot for STAI-S_T2 vs NRS-A_T2 with a regression line [$Y = 3.990 (\pm 0.200) \cdot X + 28.620 (\pm 0.901)$; $p < 0.001$; $R^2 = 0.667$]

Table 4. Correlation between trait anxiety measured using STAI-T ($n = 200$) and HADS-A ($n = 187$) with state anxiety measured using NRS-A and STAI-S for the measurements at two timepoints

Spearman's correlation coefficient	T1		T2	
	NRS-A	STAI-S	NRS-A	STAI-S
STAI-T_T1	0.336	0.387	0.354	0.406
p-value	0.000	0.000	0.000	0.000
HADS-A_T2	0.716	0.733	0.686	0.691
p-value	0.000	0.000	0.000	0.000

HADS-A — Hospital Anxiety and Depression Scale-Anxiety; NRS-A — Numerical Rating Scale for Anxiety; STAI-S — State and Trait Anxiety Inventory-State Anxiety; STAI-T — State and Trait Anxiety Inventory-Trait Anxiety

DISCUSSION

Internal consistency of the results for state anxiety on the STAI-S scale in the present study, in both measurements (evaluated by Cronbach's alpha), was high (above 0.9) and comparable to the reliability of the STAI-S results for Polish women in the age range of 21–40 years (0.89) [20]. This value is comparable to Cronbach's alpha STAI-S value in scientific literature [28–30]. The high reliability of measurements using the STAI-S questionnaires in the study allows these tools to be used as a reference for NRS-A validation. The other standardized anxiety measuring tools (STAI-T and HADS-A) were also highly reliable.

The results of both measurements carried out in the present study showed a high positive correlation between NRS-A and STAI-S. They suggest a high convergence validity between the NRS-S and STAI-S tools. Although there is little evidence in the literature, the relationship between NRS-A and STAI-S was shown to be stronger than reported by other researchers. This correlation in our study was stronger than that obtained in the group of adult dental patients ($\rho = 0.6563$; $p < 0.05$) [23], as well as in the group

of pediatric patients (r from 0.424 to 0.639) [22]. In the present study, the correlation between NRS-A and STAI-S was stronger than this in studies which also compared other single-item scales, such as VAS-A to STAI-S in patients undergoing surgical procedures ($r = 0.555$ to 0.593) [31]. It was also similar or stronger when compared to the correlation measured with VAS-A and STAI-S in three timepoints (at admission to the operation theatre: $r = 0.76$, $p < 0.001$; at skin closure: $r = 0.60$, $p < 0.001$; two hours after the procedure: $r = 0.65$, $p < 0.001$) [32] in patients undergoing cesarean section [32]. The strength of the correlation between NRS-A and STAI-T was slightly weaker than the strength of the correlation between STAI-T and STAI-S, and slightly stronger than the correlation between NRS-A and STAI-T ($r = 0.3456$, $p < 0.05$) obtained in the study by Walawender et al. [23]. Positive correlations between NRS-A and HADS-A of a similar strength as between STAI-S and HADS-A were obtained. The above results enable NRS-A to be considered as a relevant tool for measuring state anxiety in Polish postpartum females.

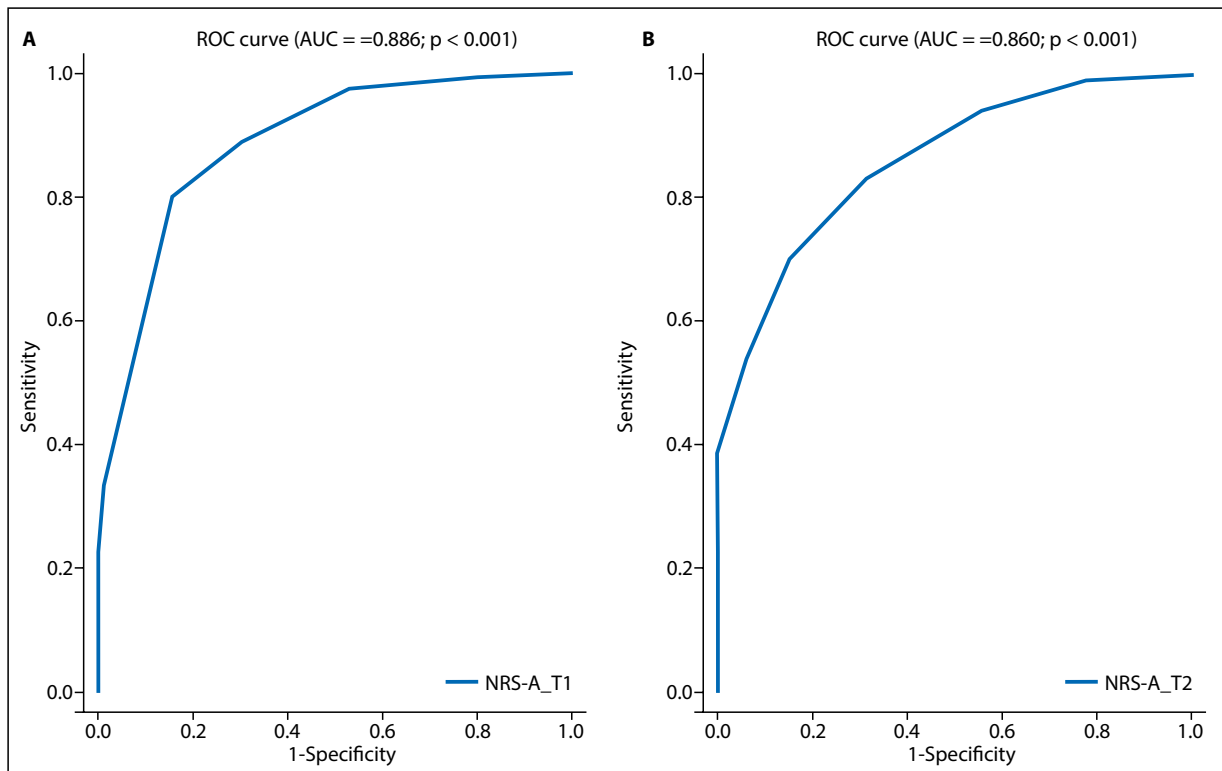


Figure 2. ROC curves; **A.** ROC curve calculated for NRS-A_T1 using STAI-S_T1 where a score of more than 40 was selected as an indicator of high anxiety. A NRS-A cut-off value of 3.5/10 reflected the best combination of sensitivity (80%) and specificity (84%); **B.** ROC curve calculated for NRS-A_T2 using STAI-S_T2 where a score of more than 40 was selected as an indicator of high anxiety. A NRS-A cut-off value of 3.5/10 reflected the best combination of sensitivity (80%) and specificity (85%)

The absolute stability values for state anxiety measured using STAI-S in two measurements with an interval of 3–4 weeks for women and men of different ages range from 0.39 to 0.81. In the group of 25 Polish women aged 21–40, the absolute stability is $r = 0.59$ [20]. Obtaining a similar high strength of dependent measurements (using the absolute stability method with the retest test) of state anxiety between the first day and the second day on both scales (NRS-A — $\rho = 0.708$ and STAI-S — $\rho = 0.701$), as well as obtaining a lack of differences in the anxiety level measured on both scales, allows NRS-A to be considered as a reliable tool.

No studies concerning the determination of the cut-off point were found for patients with high anxiety on NRS-A. The present research filled this gap. The cut-off points for separating patients with high anxiety using STAI-S equal to 40 was selected according to the recommendation of the manual for the Polish version of STAI-S for the group of women in the age range of 21–40. This is similar to the age of the studied population in the author's previous study [20], and also similar to the studies that validate the single visual analogue scale for anxiety (VAS-A) from 0 to 100 [31, 33].

The obtained (on the basis of the ROC curve analysis) cut-off point of 3.5/10 on NRS-A is similar to the values ob-

tained by Labaste et al. on VAS-A with a shift of one decimal place (34/100) [31], and lower than the values obtained by Facco et al. (46/100) [33]. Measurements were conducted at two points (using the test-retest method). In both measurements, the values of the cut-off point coincided with each other. The range for high anxiety on NRS-A should therefore be 4 and above (considering that the STAI-S cut-off point is equal to 40). However, it should be noted that in the group of 90 women, which is a group that normalizes the sten in the Polish STAI adaptation for 21–40 years old, the mean state anxiety was 36.80 (the median was not given), i.e. it considered the group of patients without high anxiety [20]. In the author's study, for 200 women after childbirth, the median of anxiety in the first day was 42.5, and in the second day was 42. Both medians are in the high anxiety group. For this reason, the value of 3.5/10 on NRS-A for identifying patients with high anxiety should be treated as a starting point for further research concerning the identification of high anxiety in women during the puerperium.

Additional evidence of the reliability of the measurement using NRS-A in relation to STAI-S is the comparability of the similar values of the AUC, sensitivity and specificity of both ROC curve models for the thresholds that indicate the risk of an anxiety disorder in patients (defined by

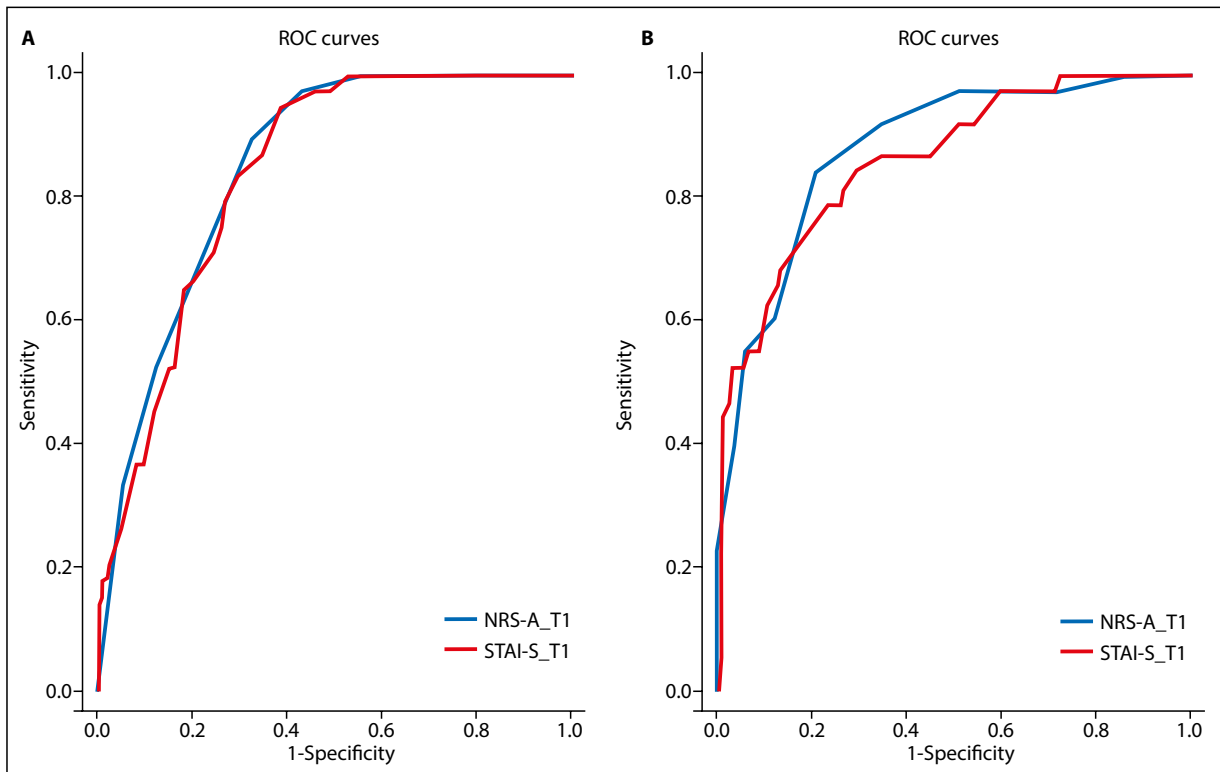


Figure 3. ROC curves; **A.** Calculated for NRS-A_T1 (AUC = 0.852; $p < 0.001$) and for STAI-S_T1 (AUC = 0.842; $p < 0.001$) using HADS-A, where a score of more than 10 was selected as an indicator of anxiety disorders. A NRS-A cut-off value of 4.5/10 reflected the best combination of sensitivity (89%) and specificity (69%). A STAI-S cut-off value of 42.5/80 reflected the best combination of sensitivity (95%) and specificity (62%); **B.** Calculated for NRS-A_T2 (AUC = 0.880; $p < 0.001$) and for STAI-S_T2 (AUC = 0.863; $p < 0.001$) using HADS-A, where a score of more than 10 was selected as an indicator of anxiety disorders. A NRS-A cut-off value of 4.5/10 reflected the best combination of sensitivity (84%) and specificity (79%). A STAI-S cut-off value of 50.5/80 reflected the best combination of sensitivity (71%) and specificity (85%)

Table 5. Anxiety (measured using NRS-A and STAI-S) in the group of patients declaring no need for emotional support (NES1) vs the group of patients declaring a need for emotional support (NES2) on the first (T1) and the second (T2) day

	Mdn	Mrang	Mdn	Mrang	Z(U)	p
	NES1_T1 (n = 99)		NES2_T1 (n = 101)			
NRS-A_T1	2	75.21	5	125.29	-6.155	< 0.001
STAI-S_T1	37	72.66	49	127.79	-6.739	< 0.001
	NES1_T2 (n = 104)		NES2_T2 (n = 96)			
NRS-A_T2	2	75.43	4.5	127.66	-6.422	< 0.001
STAI-S_T2	37	77.46	46.5	125.46	-5.863	< 0.001

Mdn — median; NRS-A — Numerical Rating Scale for Anxiety; STAI-S — State and Trait Anxiety Inventory-State Anxiety

the reference cut-off point on HADS-A equal to 10). Marking the cut-off point on a straight line using the NRS-S scale allows for the quick identification of patients with a high level of anxiety during the puerperium.

The innovative implementation of dividing patients in the author's study into those reporting a need for emotional support or those reporting a lack of such a need made it possible to assess the levels of anxiety in these groups on both scales (NRS-A and STAI-S). Similar results of the Mann-Whitney

U test on both scales confirmed a significant difference in the levels of anxiety in both groups. In the group of patients reporting a need for emotional support in both measurements, the mean level of anxiety was above the cut-off point for patients with high anxiety in the case of both tools (over 3.5 on NRS-A and over 40 on STAI-S). In turn, in the group of patients reporting no need for emotional support in both measurements, the average level of anxiety was below the cut-off point for patients with high anxiety in the case of both tools.

The ability to measure anxiety in a simple way allows for a quick preliminary qualification of patients for emergency interventions. Considering both days of puerperium, the need for emotional support was declared by nearly half of the patients. The NICE guidelines[17] recommend the monitoring of the emotional state of women in the perinatal period and the use of evidence-based relief interventions. The NRS-A scale, tested in terms of its accuracy and reliability, may facilitate the assessment of puerperal anxiety. An additional advantage of NRS-A is its free availability and its similarity to the well-known NRS for assessing pain, which is recommended for use in hospitals [12, 34]. It takes a few seconds for the respondent to provide a one value for anxiety experienced at a given moment [22]. Taking into account the period of early puerperium, in which postpartum females may feel discomfort caused by pain and in which they also have a limited time to fill in time-consuming questionnaires (due to the need of caring for their newborn), NRS-A gives the opportunity to assess anxiety in a simple, quick, accurate and honest way.

The limitation of the study is the fact that patients from only one clinical centre were examined, and that the evaluated population was homogenic in terms of the patients' health, education and economic situation, as well as the health of their children.

CONCLUSIONS

The present study showed that NRS-A is a valid and reliable tool for measuring anxiety in postpartum females. Routine anxiety measurements with a numerical single-item postpartum scale can be used to identify patients with high anxiety in order to provide emotional support to patients in early postpartum.

Conflict of interest

All authors declare no conflict of interest.

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Anna Prokopowicz, Bartłomiej Stańczykiewicz,
Izabella Uchmanowicz

**Anxiety and Psychological Flexibility in Women
After Childbirth in the Rooming-in Unit during
the COVID-19 Pandemic**

Journal of Midwifery & Women's Health 2023

VIII. Podsumowanie wyników

W niniejszym rozdziale omówiono krótko artykuły stanowiące podstawę rozprawy doktorskiej.

Część 1

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Health in the context of psychological flexibility and acceptance and commitment therapy, *Medical Research Journal*, 2021, vol. 6, nr 3, s. 249-253, DOI:10.5603/MRJ.a2021.0032

Uzyskane dane z przeglądu badań wskazują, iż wyższe zasoby EP pomagają jednostce prowadzić bogate, wartościowe życie, pomimo dolegliwości związanych z doświadczaniem bólu przewlekłego, zoperacjonalizowane jako częstsze korzystanie z opieki zdrowotnej, częstsze podejmowanie pracy oraz stosowanie mniejszych ilości opioidów. Różne miary EP okazały się również istotnymi mediatorami wyniku leczenia terapeutycznego u pacjentów z bólem przewlekłym. Wyższe wyniki EP były wiarygodnymi predyktorami zdrowia psychicznego (niższego lęku oraz poziomu depresji) u homoseksualnych mężczyzn poddających się badaniom przesiewowym w kierunku ryzyka nowotworu odbytu.

Wykazano, że niższa EP w populacji amerykańskich i tureckich studentów była powiązana z wyższymi poziomami depresji i lęku. Zgłaszany przez finlandzkich studentów lęk przed wystąpieniami publicznymi koreluje z niższą EP w obszarach z otwartością na doświadczanie i wyższą fuzją poznawczą. Kilka badań przeprowadzonych podczas izolacji związanej z pandemią COVID-19, na różnych populacjach, wykazało, że wyższa EP ma związek z lepszym funkcjonowaniem jednostki w sferze psychicznej, fizycznej i społecznej. Mocną stroną EP jest możliwość jej rozwijania i wzmacniania w ramach Terapii Akceptacji i Zaangażowania, co w konsekwencji, jak pokazały badania, może pozytywnie wpłynąć na wszystkie obszary zdrowia jednostki.

Część 2

Prokopowicz Anna, Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study, *Ginekologia Polska*, 2022, vol. 93, nr 9, s. 686-694, DOI:10.5603/gp.a2021.0197

Analiza uzyskanych wyników wskazuje na dodatnie i wysokie ($p < 0,001$) korelacje pomiędzy STAI-S a NRS-A w obu pomiarach. Wyniosły one kolejno: w T1 $\rho = 0,807$, w T2 $\rho = 0,778$. Wykazano korelacje o porównywalnej sile pomiędzy pomiarami zależnymi (T1 z T2) obliczone osobno dla NRS-A ($\rho = 0,708$; $p < 0,001$) oraz dla STAI-S ($\rho = 0,701$; $p < 0,001$).

Dodatnie związki pomiarów STAI-T z NRS-A i STAI-S oraz HADS-A z NRS-A i STAI-S mają zbliżoną siłę i istotność ($p < 0,001$) dla obu skal. Powyższe wyniki wskazują na wysoką trafność zbieżną między narzędziami NRS-S i STAI-S. Wynik w badaniu własnym jest wyższy niż uzyskany w grupie dorosłych pacjentów stomatologicznych oraz w grupie pacjentów pediatrycznych^{9,10}.

Dodatkowo analiza krzywej ROC dla 200 pacjentek sugerowała wartość 3,5/10 na skali NRS-A jako próg dla wysokiego lęku (zdefiniowany za pomocą referencyjnego punktu odcięcia na STAI-S równego 40) w obu pomiarach (w T1 AUC = 0,886; $p < 0,001$ oraz w T2 AUC = 0,860; $p < 0,001$).

Analiza krzywej ROC dla 187 pacjentek sugerowała wartość 4,5/10 na skali NRS-A dla T1 i T2 (dla STAI-S wartość 42,5/80 w T1 oraz 50,5/80 w T2) jako próg wskazania ryzyka zaburzenia lękowego (zdefiniowany za pomocą referencyjnego punktu odcięcia na HADS-A równego 10).

Innowacyjne wprowadzenie podziału na pacjentki zgłaszające potrzebę wsparcia emocjonalnego lub brak takiej potrzeby w badaniu własnym umożliwiło ocenę poziomów lęku w tych grupach na obu skalach (NRS-A oraz STAI-S). Biorąc pod uwagę obie doby połogu potrzebę wsparcia emocjonalnego deklarowała blisko połowa pacjentek. Z grupy 200 pacjentek potrzebę wsparcia emocjonalnego zadeklarowało w pierwszej dobie (T1) 101 (50,5%), a w dobie drugiej (T2) 96 (48,0%) pacjentek. W obu pomiarach na skali NRS-A, jak i na skali STAI-S, wykazano wyższy ($p < 0,001$) poziom lęku w grupie kobiet deklaruujących potrzebę wsparcia emocjonalnego w stosunku do grupy kobiet nie deklaruujących potrzeby wsparcia emocjonalnego. Przebadana pod względem trafności i rzetelności skala NRS-A może ułatwić monitorowanie poziomu lęku u kobiet w połogu w celu udzielenia wsparcia emocjonalnego położnicom z wysokim lękiem.

Część 3

Prokopowicz, A.; Stanczykiewicz, B.; Uchmanowicz, I. Anxiety and psychological flexibility in women after childbirth in the rooming-in unit during the COVID-19 pandemic, *Journal of Midwifery and Women's Health* 2022 Dec 24. doi: 10.1111/jmwh.13445. Epub ahead of print.

W badaniu po raz pierwszy podjęto próbę określenia związku pomiędzy elastycznością psychologiczną a występowaniem lęku u kobiet po porodzie. Wykazano, że niska EP ma związek z wyższym lękiem. Dodatkowo wykazano, że niska EP mierzona AAQ-2 może mieć wartość predykcyjną dla wykrycia ryzyka zaburzeń lękowych w położu.

Z grupy 187 położnic 79,7% (149 kobiet) miało niski poziom ryzyka zaburzeń lękowych (HADS-A-1), a 20,3% (38 kobiet) wysokie ryzyko zaburzeń lękowych (HADS-A-2). Wynik ten jest zbliżony do danych z innych publikacji dotyczących lęku okołoporodowego²²⁻²⁴. Porównanie grupy HADS-A-2 z grupą HADS-A-1 w badaniu własnym pokazało dodatkowo, że obie grupy różnią się między sobą poziomami EP, bólu oraz większości lęków. Należy jednak zauważyć, że istotną różnicę w tych grupach wykazano w specyficznych poziomach lęku związanych z macierzyństwem, a nie w lęku przed zachorowaniem na COVID-19. Być może ryzyko zaburzenia lękowego w położu ma związek przede wszystkim ze specyficzną sytuacją okołoporodową matek. Wyższy poziom lęku przed samodzielną opieką nad noworodkiem miały także pierwiastki w porównaniu do wieloródek ($p < 0,05$).

Kolejnym etapem analiz było obliczenie predykcji ryzyka zaburzenia lękowego za pomocą pojedynczych zmiennych objaśniających, takich jak: niska EP, lęk (mierzony innymi kwestionariuszami od HADS-A) oraz ból. Jednoczynnikowa regresja logistyczna wykazała, że największy procent wariacji ryzyka zaburzenia lękowego spośród wszystkich lęków wyjaśnia lęk jako stan (46,7% mierzony NRS-A oraz 44,9% mierzony STAI-S). Kwestionariusz STAI-T (jego wyższe wyniki stanowią o wyższym lęku jako cesze) wyjaśnia zbliżony procent wariacji (13,8%) ryzyka zaburzenia lękowego u kobiet po porodzie do AAQ-2 (jego wyższe wyniki stanowią o niższej EP) (13,1%). Innymi słowy wykazano, że kwestionariusz unikania doświadczania AAQ-2 oraz kwestionariusz dla lęku cechy STAI-T bardzo podobnie objaśniają ryzyko zaburzenia lękowego u kobiet w położu.

Wykazano, że kwestionariusz AAQ-2 dodatnio korelował z numeryczną skalą bólu oraz ze wszystkimi kwestionariuszami do oceny lęku. Najsilniej AAQ-2 korelowało ze STAI-T ($\rho = 0,659$; $p < 0,001$). Wynik powyższy był zbliżony, choć nieco niższy niż w badaniu na polskiej ogólnej populacji ($r = 0,78$; $p < 0,001$), przeprowadzonym podczas

polskiej adaptacji AAQ-2¹⁶ oraz podobny do związku AAQ-2 z kwestionariuszem GAD (ang. General Anxiety Disorder) jako miarą lęku uogólnionego ($\rho = 0,66$; $p < 0,001$)²⁵. Uzyskane wyniki zachęcają do dalszej ścieżki badań nad lękiem i jego związkiem z elastycznością psychologiczną w położu w innych ośrodkach klinicznych oraz w populacjach kobiet, które urodziły noworodki wymagające specjalistycznego leczenia. Zaprojektowanie działań profilaktycznych i interwencyjnych ukierunkowanych na zwiększenie elastyczności psychologicznej może wpłynąć na poprawę kondycji psychicznej kobiet po porodzie.

IX. Wnioski

1. Dane z przeglądu badań ukazują, że wyższa elastyczność psychologiczna jest związana z niższym lękiem i depresją, a także z lepszym funkcjonowaniem osób z bólem przewlekłym oraz stresem wywołanym pandemią COVID-19 w różnych populacjach.
2. Elastyczność psychologiczna jest istotnym konstruktem psychologicznym mającym związek z kondycją psychiczną i fizyczną położnic.
3. Kwestionariusz unikania doświadczenia AAQ-2 oraz kwestionariusz lęku jako cechy STAI-T objaśniają w ok. 13% ryzyko zaburzenia lękowego u kobiet w położu.
4. NRS-A jest trafnym i rzetelnym narzędziem do pomiaru lęku jako stanu u położnic. Oszacowano wartość 3,5/10 na skali NRS-A jako próg wskazania wysokiego lęku u kobiet po porodzie. NRS-A objaśnia w 47% ryzyko zaburzenia lękowego u kobiet w położu.
5. Rutynowy pomiar lęku numeryczną skalą może być wykorzystany do identyfikacji pacjentek z wysokim lękiem w celu udzielenia im wsparcia emocjonalnego we wczesnym położu.
6. Szczególne wsparcie należy zapewnić kobietom, które zostały po raz pierwszy matkami.
7. Wyniki przeprowadzonych badań mogą być przydatne do rozwoju ścieżki badań nad normalizacją lęku oraz nad zwiększeniem elastyczności psychologicznej u kobiet po porodzie.

X. Piśmiennictwo

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Chongqing during the COVID-19 outbreak: a cross-sectional study. *Bjog* 2020;127:1229-1240. doi: 10.1111/1471-0528.16381

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XI. Załączniki

1. Oświadczenia współautorów prac

2. Nota biograficzna

Anna Prokopowicz urodziła się w 1970 roku. Dyplom położnej uzyskała w 1993 roku. W 2012 roku ukończyła studia magisterskie na kierunku Położnictwo na Wydziale Nauk o Zdrowiu UM we Wrocławiu. W 2013 uzyskała tytuł specjalisty w dziedzinie pielęgniarstwa położniczego. W roku 2019 ukończyła Psychologię, a w 2020 Interwencję Kryzysową na Uniwersytecie SWPS we Wrocławiu. Obecnie studiuje tamże w podyplomowej Szkole Terapii Poznawczo-Behawioralnej.

Zawodowo od 27 lat związana jest z II Kliniką Ginekologii i Położnictwa w USK we Wrocławiu, gdzie obecnie pracuje na stanowisku Starszego Asystenta. Od 2019 roku zatrudniona jest na stanowisku Asystenta Dydaktycznego w Zakładzie Położnictwa i Pielęgniarstwa Ginekologiczno-Położniczego, w Katedrze Pielęgniarstwa i Położnictwa, na Uniwersytecie Medycznym im. Piastów Śląskich we Wrocławiu. W roku akademickim 2022/2023 prowadzi zajęcia praktyczne w II Klinice Ginekologii i Położnictwa ze studentami kierunków: Położnictwo oraz Pielęgniarstwo. Prowadzi również wykłady oraz ćwiczenia audytoryjne z przedmiotu Praktyka położnicza w perspektywie międzynarodowej, którego jest koordynatorem. Kwalifikacje psychologa, interwenta kryzysowego i psychoterapeuty wykorzystuje w pracy z pacjentami cierpiącymi na zaburzenia lękowo – depresyjne.

Ścieżkę naukową Anna Prokopowicz rozpoczęła w 2019, kierując się potrzebą prowadzenia badań nad emocjami w ochronie zdrowia. Jej łączny dorobek naukowy na koniec 2022 roku wyniósł: 750 punktów ministerialnych oraz 20,825 Impact Factor. Wiedzę naukową propaguje biorąc czynny udział w konferencjach oraz prowadząc szkolenia dla personelu oddziału położniczego. Aktualnie zatrudniona jest również w projekcie badawczym: „Łagodne zaburzenia poznawcze w niewydolności serca: rola czynników sercowo-naczyniowych i zespołu kruchości” (Grant OPUS-21).

Jest także członkiem Polskiego Towarzystwa Położnych w regionie dolnośląskim.

3. Wykaz publikacji autora

Wykaz publikacji

Anna Prokopowicz

1. Publikacje w czasopismach naukowych

1.1 Publikacje w czasopiśmie z IF

Lp	Opis bibliograficzny	IF	Punkty
1	Prokopowicz Anna , Korzeniewska Aleksandra, Byrka Katarzyna: Patient anxiety of verticalization on day 0 after a Cesarean section, Archives of Gynecology and Obstetrics, 2021, vol. 303, nr 2, s. 391-399, DOI:10.1007/s00404-020-05748-3	2,493	70
2	Larysz Anna, Prokopowicz Anna , Zakliczyński Michał, Uchmanowicz Izabella: Occurrence of professional burnout and severity of depressive symptoms among cardiac nurses: a cross-sectional study, International Journal of Environmental Research and Public Health, 2021, vol. 18, nr 22, art.12038 [11 s.], DOI:10.3390/ijerph182212038	4,614	140
3	Prokopowicz Anna , Byrka Katarzyna: Effectiveness of mental simulations on the early mobilization of patients after cesarean section: a randomized controlled trial, Scientific Reports, 2021, vol. 11, art.22634 [8 s.], DOI:10.1038/s41598-021-02036-1	4,997	140
4	Prokopowicz Anna , Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Validation of the Numerical Anxiety Rating Scale in postpartum females: a prospective observational study, Ginekologia Polska, 2022, vol. 93, nr 9, s. 686-694, DOI:10.5603/gp.a2021.0197	1,216*	40
5	Prokopowicz Anna , Stańczykiewicz Bartłomiej, Uchmanowicz Izabella, Zimmer Mariusz: How to improve the care of women after childbirth in the rooming-in unit: a prospective observational study, International Journal of Environmental Research and Public Health, 2022, vol. 19, nr 23, art.16117 [10 s.], DOI:10.3390/ijerph192316117	4,614*	140
6	Prokopowicz A[anna] , Stańczykiewicz B, Uchmanowicz I. Anxiety and Psychological Flexibility in Women After Childbirth in the Rooming-in Unit during the COVID-19 Pandemic. Journal of Midwifery & Women's Health 2022 Dec 24. doi: 10.1111/jmwh.13445. <i>Epub ahead of print.</i>	2,891*	100
	Podsumowanie	20,825	630

*IF 2021

1.2 Publikacje w czasopiśmie bez IF

Lp	Opis bibliograficzny	Punkty
1	Prokopowicz Anna , Stańczykiewicz Bartłomiej, Uchmanowicz Izabella: Health in the context of psychological flexibility and acceptance and commitment therapy, Medical Research Journal, 2021, vol. 6, nr 3, s. 249-253, DOI:10.5603/MRJ.a2021.0032	100
	Podsumowanie	100

2. Monografie naukowe

2.1 Książka autorska -

2.2 Książka redagowana –

2.3 Rozdziały

Lp	Opis bibliograficzny	Punkty
1	Prokopowicz Anna: Psychologiczna perspektywa kobiety po narodzinach dziecka z wadą genetyczną, W: Badania naukowe w pielęgniarstwie i położnictwie. T.8, (red.) Izabella Uchmanowicz, Monika Przestrzelska, Piotr Jerzy Gurowiec, Wrocław 2020, Wydawnictwo Continuo, s. 386-393, ISBN 978-83-62182-88-6	20
	Podsumowanie	20

3. Abstrakty

Lp	Opis bibliograficzny
1	Larysz Anna, Prokopowicz Anna , Zakliczyński Michał, Uchmanowicz Izabella: Occurrence of professional burnout and severity of depressive symptoms among cardiac nurses: a prospective and observational study, European Journal of Cardiovascular Nursing, 2021, vol. 20, nr suppl.1, 152 poz.zvab060.145, [EuroHeartCare ACNAP Congress 2021. Online Congress, 18-19 June, 2021], DOI:10.1093/eurjcn/zvab060.145

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4. Zgoda Komisji Bioetycznej

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