

ORIGINAL RESEARCH

Perceptions of andropausal experience types among middle-aged men—applying the Q methodology

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Abstract

Background: This study seeks to utilize the Q methodology to identify distinct typologies of andropausal experience perception among middle-aged men, with the goal of comprehending their understanding of andropausal experiences. **Methods:** The aim is to utilize this understanding as a basis for education and nursing intervention programs to help men positively navigate the experience of andropause. This study applied the Q methodology to identify and classify perceptions of andropausal experiences. The analysis included 34 questions from the Q sample and data. **Results:** A sample of 35 individuals (referred to as the P sample) was analyzed using the PC-QUANL program. In this study, four types were identified (physical changes type, psychological changes type, coping with andropause type, difficulty in interpersonal relationships type). **Conclusions:** The findings of this study suggest the need to develop tools for measuring andropause coping behaviors based on the identified types of andropause experience perception among middle-aged men. Additionally, it is imperative to conduct efficient symptom management and educational program development and evaluation tailored to these perception types.

Keywords

Andropause; Male; Middle aged; Recognition; Type

1. Introduction

1.1 Significance of the study

Andropause, a condition associated with aging and androgen deficiency in middle-aged men, presents with symptoms such as abdominal obesity, muscle mass decline, osteoporosis, hair loss, skin changes, depression, cognitive decline, sleep disturbances, fatigue-related emotional changes and altered sexual function marked by reduced libido and erectile dysfunction [1]. Andropause refers to a condition where there is a decrease in sexual interest or a reduction in erectile strength, as well as symptoms such as decreased vitality, decreased muscle or endurance, decreased height, reduced enjoyment of life, feelings of sadness or dissatisfaction, decreased agility, postprandial drowsiness and decreased work efficiency when three or more of these symptoms are present [2]. Androgen hormones gradually decline, and because a certain level of hormone is continuously secreted, symptoms do not occur at a specific time like menopause in women and are not clearly recognized for their severity, often considered as a natural part of the aging process [3].

The prevalence rate of andropause is over 60%, with the majority of middle-aged men experiencing it [4], and if not properly managed, it can lead to chronic diseases, making it important for middle-aged men to be aware of and actively address their andropausal symptoms [5]. Men also experience

a crisis moment in their lives, known as andropause, akin to menopause experienced by women. During this phase, they encounter significant physical and emotional changes [5]. This period of upheaval in the later years of life is often viewed as an inevitable process, similar to adolescence experienced during the growth phase [6].

Particularly for men, who are less inclined to openly share their emotions with others, andropause has earned the label of “second adolescence” or “prolonged adolescence”. This reflects the emotional and psychological challenges that often accompany this stage of life [6].

The crisis experienced by middle-aged men during andropause, in contrast to adolescence, has a more significant impact on their surrounding relationships, given their greater social status, expertise, authority and freedom [7]. Moreover, andropause is heavily influenced by societal and psychological factors, including the pressure to prepare for retirement while sustaining current living standards, diminished career prospects and apprehension about competing with younger individuals [8]. Andropausal may experience a psychological period of internal agitation, possibly resulting in impulsive behaviors such as distancing themselves from their spouse and family, seeking new sexual partners, or abruptly resigning from work [9]. These symptoms may be preceded by warning signs or manifest suddenly, posing social challenges [9].

Andropause has been largely overlooked due to societal per-

ceptions linking men with higher levels of social activity and various factors beyond just physical aspects, leading to a lack of awareness about this condition among men and hindering them from actively addressing it as women do with menopause. In recent years, with an increasing desire for health promotion and pursuing vibrant lifestyles rather than mere longevity, awareness of male andropause has risen among men [10]. Marking a significant developmental phase, particularly in their forties to fifties, in midlife characterized by prominent changes, thus highlighting a perspective that views it as a crucial transition in men's life journey [11]. Furthermore, the current state of research is deemed insufficient, particularly regarding studies involving detailed interviews. The Q methodology is well-suited for systematically exploring subjective experiences, perceptions and attitudes. This study investigates the various ways middle-aged men perceive and experience andropause, which involves highly personal and subjective elements such as physical and emotional changes, and social interactions. Therefore, using the Q methodology in this study is considered a sound approach. The Q methodology is an excellent research method for identifying the subjective nature of how individuals perceive and experience andropause. Since the objective of this study is to classify the diverse perceptions of andropause, the Q methodology allows for the identification and classification of these subjective views in a systematic and data-driven manner.

Additionally, the Q methodology has a unique ability to cluster these perceptions into types based on commonalities and differences in how participants assess their experiences. This classification helps to highlight both shared and differing perspectives among middle-aged men. Unlike purely quantitative or qualitative methods, the Q methodology combines the strengths of both by using quantitative techniques (factor analysis) to analyze qualitative data (subjective opinions). This approach allows for the exploration of the rich, nuanced perspectives of middle-aged men experiencing andropause, while also providing a clear framework for data analysis. Thus, in this study, the Q methodology is used to identify the types of perceptions of andropause experienced by middle-aged men.

Gaining insight into middle-aged men's perception of the andropausal experience is essential. Even in the absence of direct experience or extensive knowledge on managing it, fostering a positive outlook towards andropause is crucial, underscoring the need to compile foundational data to enhance their quality of life and awareness of post-andropause health issues. Therefore, the necessity to delve into middle-aged men's understanding of andropause is evident, as it could serve as foundational information for the development of interventions aimed at andropausal care during midlife. As such, this study aims to investigate the perception of andropausal experiences among middle-aged men.

1.2 Research objectives

This study seeks to utilize the Q methodology to identify distinct typologies of andropausal experience perception among middle-aged men, with the goal of comprehending their understanding of andropausal experiences. The aim is to utilize this understanding as a basis for education and nursing intervention

programs to help men positively navigate the experience of andropause.

2. Materials and methods

2.1 Research design

The Q methodology is a research approach that delves into variations in individual meanings by focusing on subjectivity such as personal feelings, beliefs, values, and images, and can categorize subjects based on similar attributes [12]. This study is exploratory research applying the Q methodology to discover perception types and characteristics regarding the andropausal experience among middle-aged men and to elucidate any existing differences.

2.2 Sampling method

2.2.1 Selection of Q population and Q sample

The Q population refers to the total set of items addressed in a Q methodological study, representing the collective opinions shared within a specific culture. In other words, the Q population encompasses all opinions related to the research topic. On the other hand, the Q sample is composed of items extracted from the Q population, usually in the form of statements written on cards. These statements are presented to participants, who then express their views on each one [12].

The Q sample aimed to reflect the perspectives of middle-aged men regarding their experiences of andropause by utilizing an unstructured Q sample. To extract statements about the andropause experiences of middle-aged men, relevant literature and previous studies on the subject were collected from academic information search websites (e.g., <http://www.riss.kr>, <http://scholar.google.com>) and portal sites (e.g., <http://www.google.com>, <https://www.naver.com>). The studies that contributed to the research on male andropause experiences include works by Kim, Oh, Paick, and Kim [2], Martelli *et al.* [3], Abootalebi, Kargar, and Aminsharifi [5], Rezaei, Azadi, and Pakzad [6], and Afsharnia, Pakgohar, Khosravi, and Haghani [8] these sources were used as a foundation for selecting relevant statements for the study.

Simultaneously, in-depth interviews were conducted with 20 middle-aged men who had experienced menopause, allowing for the collection of realistic and specific opinions to be included in the Q population.

The open-ended interview question, "What was your experience of menopause as a middle-aged man?" allowed participants to freely share their personal experiences. This provided insight into the physical, mental, and social changes these men encountered, along with the various perceptions associated with those changes. In addition to the interview findings, the review of related literature on male menopause contributed to the extraction of 80 Q population items.

The items derived from the Q population were carefully reviewed multiple times by nursing professors and researchers with extensive experience in Q methodology. Additionally, the items were refined with the guidance of a professor specializing in Q methodology, undergoing two rounds of revisions. To enhance the validity and clarity of the statements, two urology nurses with over 10 years of experience at a general hospital

and a nursing professor assessed the comprehensibility and precision of each statement. Through this process, unclear statements were revised and improved to create a more accurate and valid Q sample.

Ultimately, a Q sample consisting of 34 items was finalized. This Q sample was crafted to represent a wide range of perceptions regarding the menopause experiences of middle-aged men, and the thorough review and consultation process ensured the accuracy and reliability of the research findings.

2.2.2 P sample selection

Unlike quantitative research, the Q methodology focuses on the significance of meanings within individuals rather than differences between individuals. Since the person becomes the variable, if the P sample size increases, multiple individuals may be concentrated in one factor, making it difficult to clearly identify its characteristics. Based on the small-sample principle [12], the P sample size was determined accordingly. This study targeted 35 middle-aged men who have experienced menopause. The subjects of this study include basic demographic information such as age (between 45 and over 60), occupation, marital status, experience with menopause treatment and the number of children.

2.3 Data analysis

Following the completion of the survey on middle-aged men selected as the P sample, the collected data were scored by coding from the most negative response (−4) in the Q distribution, starting at 1 point, to neutral (0) at 5 points, and the most positive response (+4) at 9 points. Data analysis was conducted using the principal component analysis method with the PC-QUANL Program. In this study, we employed the PC-QUANL program to input and process Q-sort data, conducting steps such as data entry, factor analysis and extraction of factor scores. For the sake of reproducibility, it is crucial that the researcher understands the exact steps undertaken during the data analysis phase. This study utilized statistical techniques like principal component analysis (PCA) or centroid factor analysis, using methods to determine the number of factors. Statistical results, such as eigenvalues and factor loadings, should reveal how the data were grouped and classified into different types of perceptions of andropause. The interpretation of identified factors and the labeling of specific types should be explained, detailing how statements were clustered according to respondents' Q-sorts, which will clearly illustrate the subjectivity captured in the data.

3. Results

3.1 Formation of Q types

Using QUANL, subjective Q factor analysis was conducted on the perceptions of andropause among middle-aged men, resulting in the classification of four types. The four derived types explained 48.3% of the total variance, with explanatory power for each type as follows: Type 1 accounted for 21.4%, Type 2 for 16.1%, Type 3 for 10.6% and Type 4 for 8.7% (see Table 1). Additionally, the correlations between each type are presented in Table 2. Type 1 shows a correlation

of 0.26 with Type 2, indicating a somewhat weak positive correlation between the two types, suggesting that while some opinions may be similar, there are significant differences. The correlation coefficient between Type 1 and Type 3 is 0.19, showing that the similarity between the two types is very weak. The correlation between Type 1 and Type 4 is −0.23, indicating that these two types are likely to have opposing views. Type 2 shows a correlation of 0.33 with Type 3, meaning the two types share somewhat similar opinions. The correlation between Type 2 and Type 3 is 0.63, showing a fairly strong positive correlation, suggesting that the two types share very similar views. The correlation between Type 3 and Type 4 is 0.10, showing almost no similarity and indicating independent opinions.

3.2 Characteristics of each type

The study participants were found to comprise 13 individuals in Type 1, 10 in Type 2, 7 in Type 3 and 5 in Type 4. The demographic characteristics and factor weights within each type are detailed in Table 1. Higher weights within each type indicate individuals who exhibit the typical characteristics of that type.

The analysis of the types of andropause perception among middle-aged men was conducted based on 35 statements outlined in Table 3, describing the characteristics specific to each type centered around items on which participants expressed positive (Z -score +1.00 or higher) or negative (Z -score −1.00 or lower) agreement. Furthermore, when describing the characteristics of each type, particular emphasis was placed on items showing significant differences in the standard scores of a specific type compared to the average and standard scores of other types. The Q items and Z -scores (± 1.00) for each type are presented in Table 3.

3.2.1 Type 1: physical changes type

Out of the total 35 participants, 13 were categorized into Type 1, with an average age of 58.0 years. Among them, 9 participants had prior experience with andropausal treatment. In terms of health status, 6 participants reported being in good health, while 4 described themselves as average, and 3 indicated their health as poor (Table 4).

In Type 1, the items that received the highest level of agreement were “Have become overweight despite consuming the same amount of food ($Z = 1.84$)” and “Have experienced hair loss and a change in hair color to white ($Z = 1.66$)”. Conversely, the items that received the most negative agreement in Type 1 were “Have frequent body soreness and joint pain ($Z = -2.33$)” and “Have frequent heart palpitations ($Z = -1.69$)”.

As such, among middle-aged men experiencing andropause, the typical changes predominantly revolve around physical alterations. Analyzing factors such as decreased levels of sex hormones, hair loss, increased body fat, decreased muscle mass and reduced bone density, Type 1 suggests an inclination among middle-aged men to prioritize physical changes as significant symptoms of andropause. The diverse changes experienced during andropause in middle-aged men can vary from person to person, but individuals with a subjective emphasis on physical changes, considering them as a significant aspect

TABLE 1. Types, eigen values, variance, cumulative, factor weight, and demographic characteristics for P-sample (N = 35).

Type	Eigen values, variance (%), cumulative	P No.	Factor weight	Age (yr)	Job	Marital Status	Andropause Treatment Experience	Number of Children	Health Statement (myself)
Type 1 (N = 13)	Eigen values 3.98 Variance 21.39 Cumulative 0.11	1	0.89	62	Yes	Yes	Yes	1	Good
		14	1.74	58	Yes	Yes	Yes	1	Good
		23	0.43	56	Yes	Yes	Yes	1	Good
		25	1.67	49	Yes	Yes	Yes	2	Bad
		32	0.36	55	No	Yes	No	2	Bad
		34	0.44	58	No	Yes	No	1	Ordinary
		13	2.01	49	Yes	Yes	Yes	1	Ordinary
		16	0.68	60	Yes	Yes	Yes	1	Bad
		20	0.37	61	No	Yes	No	1	Good
		24	0.60	66	No	Yes	No	1	Good
		28	0.32	63	No	Yes	Yes	2	Ordinary
		33	0.32	59	No	Yes	Yes	3	Ordinary
		35	0.87	58	Yes	Yes	Yes	3	Good
Type 2 (N = 10)	Eigen values 3.39 Variance 16.10 Cumulative 0.21	5	0.91	55	No	Yes	Yes	1	Good
		9	0.23	52	No	Yes	Yes	1	Bad
		15	0.93	59	Yes	Yes	Yes	1	Good
		26	1.33	52	No	Yes	No	1	Ordinary
		2	0.42	62	No	Yes	Yes	2	Ordinary
		4	0.51	55	No	Yes	Yes	2	Good
		6	0.28	54	Yes	Yes	Yes	1	Ordinary
		10	0.27	56	No	Yes	No	1	Good
		11	1.18	56	No	Yes	No	1	Good
		31	0.55	54	No	Yes	No	1	Good
Type 3 (N = 7)	Eigen values 3.01 Variance 10.61 Cumulative 0.29	7	0.44	66	No	Yes	Yes	1	Good
		8	0.52	54	No	Yes	Yes	2	Good
		21	0.64	56	No	Yes	No	1	Ordinary
		27	0.70	59	No	Yes	No	1	Bad
		29	0.32	54	No	Yes	No	2	Good
		17	0.17	63	Yes	Yes	Yes	2	Good
		22	0.47	64	Yes	Yes	Yes	1	Ordinary
Type 4 (N = 5)	Eigen values 2.95 Variance 8.64 Cumulative 0.35	3	0.29	53	No	Yes	Yes	1	Ordinary
		12	0.27	55	No	Yes	Yes	1	Good
		18	0.99	58	Yes	Yes	Yes	1	Good
		19	0.45	57	Yes	Yes	No	1	Good
		30	0.43	49	Yes	Yes	No	2	Ordinary

TABLE 2. Correlation Matrix between types (N = 35).

Variables	Type 1	Type 2	Type 3	Type 4
Type 1	1.00			
Type 2	0.26	1.00		
Type 3	0.19	0.33	1.00	
Type 4	-0.23	0.63	0.10	1.00

TABLE 3. Q-Statements and Z-Scores.

Number	Q-Statements	Z-score			
		Type 1 (n = 13)	Type 2 (n = 10)	Type 3 (n = 7)	Type 4 (n = 5)
Q1	Have difficulty controlling anger from moment to moment	0.588	0.281	0.091	0.137
Q2	Have difficulty concentrating	-0.233	-0.086	-0.124	0.365
Q3	Feel dislike towards everyone and find interpersonal relationships difficult	0.106	-0.192	-0.056	-0.274
Q4	Lack of enthusiasm for life in general	0.198	-0.416	0.119	0.422
Q5	Have insomnia and difficulty falling asleep at night	0.413	0.593	0.199	-0.263
Q6	Wake up frequently at night due to urgent need to urinate	0.093	-0.189	-0.037	0.267
Q7	Have poor memory and forget things often	-0.381	-0.033	-0.157	-0.010
Q8	Feel fatigued even without engaging in many activities	-0.430	-0.378	-0.190	0.163
Q9	Make efforts to find oneself	-0.082	0.223	-0.211	0.150
Q10	Search for andropause treatment through a mobile app	-0.164	0.008	-0.034	0.257
Q11	Have become overweight despite consuming the same amount of food	0.301	-0.361	0.119	0.664
Q12	Have muscle loss and abdominal obesity	0.071	0.139	-0.217	-0.260
Q13	Have frequent body soreness and joint pain	0.138	0.206	0.782	0.075
Q14	Have experienced hair loss and a change in hair color to gray	0.754	0.085	0.196	0.058
Q15	Have increased sweating	0.145	0.599	0.066	-0.163
Q16	Have erectile dysfunction and decreased libido	-0.157	-0.090	0.510	0.024
Q17	Have persistent feeling that life is meaningless	-0.157	-0.173	0.140	-0.009
Q18	Tears come easily even when watching dramas	-0.130	0.346	0.060	-0.616
Q19	Feel down when staying still	0.202	-0.004	-0.119	-0.381
Q20	Feel lazy and not wanting to do anything	0.139	0.104	0.334	-0.129
Q21	Feel discomfort with new environments and have preference for familiar environments	-0.488	-0.069	0.215	-0.000
Q22	Have awkward relationships with one's own children	-0.050	-0.231	-0.399	-0.044
Q23	Feel anxious about having to take care of parents.	0.372	-0.012	-0.019	0.156
Q24	Have continuous conflict with spouse with no resolution	0.002	-0.132	0.471	0.088
Q25	Experience loss of vitality due to declining physical function.	0.746	0.141	0.069	-0.024
Q26	Have frequent heart palpitations	0.142	0.693	0.115	-0.290
Q27	Experience decreased sexual pleasure	-0.516	-0.095	-0.068	-0.352
Q28	Feel a lack of confidence and inability to do anything	0.258	0.253	0.293	0.255
Q29	Wish to overcome andropause through hormone therapy	-0.295	0.232	0.013	-0.001
Q30	Symptoms worsened due to financial difficulties	0.072	-0.010	0.323	-0.377
Q31	Family support contributes to happiness in life	0.007	0.293	0.332	0.443
Q32	Find enjoyment in gatherings with colleagues and friends	0.329	-0.121	0.117	0.152
Q33	Make efforts to manage health for myself	-1.002	-0.150	0.293	0.083
Q34	Seek to reduce stress and consume healthy foods	0.382	-0.245	-0.296	0.005

TABLE 4. The Q-statements and Z-scores (± 1.0) by the Parenting Types (N = 35).

Type	Q-statement	Z-score
Type 1 Physical Changes Type	Q11. Have become overweight despite consuming the same amount of food	1.84
	Q14. Have become hair loss and a change in hair color to gray	1.66
	Q2. Have difficulty concentrating	1.65
	Q12. Have muscle loss and abdominal obesity	1.45
	Q6. Wake up frequently at night due to urgent need to urinate	1.37
	Q8. Feel fatigued even without engaging in many activities	1.18
	Q16. Have erectile dysfunction and decreased libido	-1.09
	Q25. Experience loss of vitality due to declining physical function	-1.50
	Q26. Have frequent heart palpitations	-1.69
	Q13. Have frequent body soreness and joint pain	-2.23
Type 2 Psychological Changes Type	Q1. Have difficulty controlling anger from moment to moment	1.68
	Q21. Feel discomfort with new environments and have preference for familiar environments	1.65
	Q20. Feel lazy and not wanting to do anything	1.62
	Q13. Have frequent body soreness and joint pain	1.58
	Q11. Have become overweight despite consuming the same amount of food	1.41
	Q26. Have frequent heart palpitations	1.05
	Q27. Experience decreased sexual pleasure	1.00
	Q5. Have insomnia and difficulty falling asleep at night	-1.06
	Q23. Feel anxious about having to take care of parents.	-1.06
	Q18. Tears come easily even when watching dramas	-1.40
Type 3 Coping with Andropause Type	Q4. Lack of enthusiasm for life in general	-1.64
	Q19. Feel down when staying still	-1.74
	Q34. Seek to reduce stress and consume healthy foods	2.38
	Q33. Make efforts to manage health for myself	2.36
	Q31. Family support contributes to happiness in life	1.82
	Q9. Make efforts to find oneself	1.19
	Q10. Search for andropause treatment through a mobile app	1.12
	Q11. Have become overweight despite consuming the same amount of food	-1.42
	Q32. Find enjoyment in gatherings with colleagues and friends	-1.54
	Q29. Wish to overcome andropause through hormone therapy	-1.76
Type 4 Difficulty in Interpersonal Relationships Type	Q3. Feel dislike towards everyone and find interpersonal relationships difficult	1.61
	Q22. Have awkward relationships with one's own children	1.51
	Q17. Have persistent feeling that life is meaningless	1.47
	Q15. Have increased sweating	1.41
	Q11. Have become overweight despite consuming the same amount of food	1.30
	Q25. Experience loss of vitality due to declining physical function.	-1.12
	Q1. Have difficulty controlling anger from moment to moment	-1.14
	Q23. Feel anxious about having to take care of parents.	-1.16
Q28. Feel a lack of confidence and inability to do anything	-1.52	
Q24. Have continuous conflict with spouse with no resolution	-2.02	

of their characteristics, were categorized as “Physical Changes Type”.

3.2.2 Type 2: psychological changes type

Participants belonging to Type 2 totaled 10 out of 35, with an average age of 55.0 years, and 6 participants reported having experience with andropause treatment. Regarding their health status, 6 participants described themselves as healthy, while 3 considered themselves average, and 1 participant indicated their health as poor (Table 4).

The items that showed the strongest agreement in Type 2 were “Have difficulty controlling anger from moment to moment ($Z = 1.68$)” and “Feel discomfort with new environments and have preference for familiar environments ($Z = 1.65$)”. Conversely, the items that Type 2 showed the most negative agreement on were “Feel down when staying still ($Z = -1.74$)” and “Lack enthusiasm for life in general ($Z = -1.64$)”.

Based on the above results, middle-aged men in Type 2, unlike those in Type 1 who primarily focus on physical changes, can be seen to experience sadness, depression, identity confusion, stress, and anxiety during the andropause phase. This suggests that the participants perceive changes in psychological well-being as a significant factor in understanding the andropause experience, leading them to be labeled as Psychological Changes Type.

3.2.3 Type 3: coping with andropause type

There was a total of 7 participants in Type 3, out of 35, with an average age of 59.0 years. Among them, 4 participants had experiences with andropause treatment. In terms of health status, 4 participants reported being healthy, while 2 reported being average and 1 reported being in poor health (Table 4).

The strongest agreements observed in Type 3 were with the statements: “Seek to reduce stress and consume healthy foods ($Z = 2.38$)” and “Make efforts to manage health for myself ($Z = 2.36$)”. On the other hand, the most negative agreements in Type 3 were with the statements: “Wish to overcome andropause through hormone therapy ($Z = -1.76$)” and “Find enjoyment in gatherings with colleagues and friends ($Z = -1.54$)”.

Upon analyzing the results above, it appears that the previous types emphasized physical and psychological changes, whereas Type 3 underscores the importance of overcoming andropause for middle-aged men experiencing this stage of life. This suggests that middle-aged men experiencing andropause view overcoming this phase as the most crucial factor, valuing habits like maintaining a healthy lifestyle, stress management, psychological support, and establishing a support system, thus leading to the classification of Type 3 as “Coping with Andropause Type”.

3.2.4 Type 4: difficulty in interpersonal relationships type

Participants in Type 4 numbered 5 out of 35, with an average age of 54.0 years, and 3 of them reported undergoing andropause treatment. Among them, 3 participants described their health as good, while 2 reported it as average (Table 4).

The most strongly agreed-upon statements in Type 4 were “Feel dislike towards everyone and find interpersonal relation-

ships difficult ($Z = 1.61$)” and have awkward relationships with one’s own children ($Z = 1.51$). On the other hand, the most negatively agreed-upon statements in Type 4 were “Have continuous conflict with spouse with no resolution ($Z = -2.02$)” and “Feel a lack of confidence and inability to do anything ($Z = -1.52$)”.

Analyzing the results above, while the former types emphasized physical changes, psychological shifts, and overcoming andropausal challenges, Type 4 suggests that middle-aged men experiencing menopause prioritize difficulties in interpersonal relationships. This indicates that conflicts arise in relationships with family, spouses or friends due to these issues stemming from physical and psychological changes, resulting in conflicts and challenges with acceptance. In addition, it has been observed that emotional fluctuations, communication difficulties and changes in family structure and roles due to children becoming adults or parents aging contribute to challenges within the family. Hence, the participants, deemed to harbor concerns regarding interpersonal challenges, were classified as individuals experiencing difficulties in human relationships, leading to the designation of Type 4 as the “Difficulty in Interpersonal Relationships Type”.

3.3 Commonalities among types

From the above results, it can be observed that the perceptions of andropause among middle-aged men are categorized into four distinct types, each exhibiting clear characteristics associated with their respective types. However, among middle-aged men experiencing andropause corresponding to any one of the four types, there were statements that were unanimously agreed upon or opposed, notably have become overweight despite consuming the same amount of food ($Z = 1.14$). Middle-aged men are found to be concerned about changes in their weight during andropause, which may be attributed to metabolic rate decrease, hormonal changes, dietary alterations, and other physiological changes experienced during this stage (Table 5).

TABLE 5. Consensus items and average Z-scores (N = 35).

Q-statement	Z-scores
Q11	1.14
Have become overweight despite consuming the same amount of food	

4. Discussion

The perception of andropause symptoms in middle-aged men influences their ability to positively embrace and wisely cope with this stage of life [13]. This study attempted to classify the types of andropausal experience perceptions among middle-aged men using the Q methodology, aiming to understand the characteristics and structure of each type and provide foundational data for program development based on the types of andropausal experience perceptions. The study revealed four types of andropausal experience perceptions among middle-aged men in South Korea: physical changes type, psycho-

logical changes type, coping with andropause type, and difficulty in interpersonal relationships type, and aims to discuss these types according to their respective characteristics. The program developed through this study can raise awareness tailored to the specific needs of middle-aged men experiencing andropause, provide targeted interventions, or offer necessary support. It can also help improve men's psychological well-being, enhance their quality of life, and provide healthcare professionals with better tools to address andropause-related issues. Additionally, the program can offer educational resources to both individuals and healthcare providers, fostering better communication and understanding of andropause.

The first type identified in this study was the physical changes type. This type emphasizes physical changes such as weight gain, hair loss, and other bodily changes. In the study by Jeon and Kim [14], factors such as body shape and physiological changes were identified as significant factors in the andropause transition of middle-aged men. Additionally, Kim *et al.* [15] noted that perceptions of andropause are influenced by factors such as vitality and energy decline, highlighting the importance of physical changes as key factors in men's perception of andropause. Subjective health status and physical activity not only affect the daily functioning of middle-aged men but also impact their quality of life [16]. Moreover, if appropriate treatment is not provided, these factors can become risk factors for health conditions [17]. Andropause intervention requires not only simple hormone replacement but also evidence-based and comprehensive approaches with personalized treatment [18]. For this reason, it is important to establish appropriate awareness of andropause and symptom management strategies among middle-aged men, enabling them to promptly recognize and effectively cope with associated physical changes [19]. It is also deemed necessary to implement systematic health management programs to effectively overcome andropausal symptoms and ensure a healthy transition into old age. Through this study, we will develop and implement a comprehensive educational program targeting middle-aged men that focuses on andropausal symptoms such as weight gain, hair loss, and decreased energy. These programs should raise awareness about physical changes, highlight their impacts, and encourage early recognition of symptoms. Andropause management must include personalized treatment plans that go beyond hormone replacement therapy. Healthcare providers can collaborate with patients to assess unique health profiles, including physical activity, diet, and overall health status. Additionally, tailored treatment options such as exercise regimens, dietary adjustments, and medications can be prescribed to manage symptoms more effectively. We will implement structured physical activity programs focusing on strength training, cardiovascular health, and flexibility. Furthermore, community-based support groups where men can share their experiences and strategies for managing physical changes will be created. Peer support can provide encouragement, reduce the stigma associated with andropause, and promote a proactive approach to symptom management.

Type 2 was characterized as psychological changes. Type 2 emphasized psychological health changes such as difficulty in anger management and resistance to change. Men experience

emotional changes such as depression and decreased self-esteem during andropause, and the symptoms of andropause become factors that lead to loss of meaning and value in life, as well as psychological distress, similar to previous studies [19–22]. For middle-aged men, negative expressions of anger, such as anger levels, expression, and suppression, can have detrimental effects on mental health during this stage of life [23]. Furthermore, psychological factors can become causes of interpersonal conflict, leading to increased social-psychological vulnerability as a result [22]. Therefore, various intervention strategies are required to manage psychological health changes, including anger and expressions of anger, in men during this period. To manage emotional changes during andropause, lifestyle changes and concurrent medical treatment are necessary [20]. It is deemed essential to provide psychological interventions for middle-aged men to recognize and cope with emotional changes during andropause early on. Additionally, there is a need for management programs that families and social support networks can effectively utilize [23].

The third type was identified as the “Coping with Andropause Type”. This type emphasizes overcoming andropause through maintaining healthy habits and establishing support systems. Previous studies [14, 19] have confirmed that middle-aged men are making efforts to overcome andropause and improve their quality of life through dietary adjustments, regular exercise, developing hobbies, and seeking understanding and support from family or peers, consistent with the findings of this study. Unlike menopause in women, which occurs along with the distinct change of menopause, andropause in men starts in their 40s and continues until death, highlighting the need for even more careful management [18]. According to Oh *et al.* [24], regular exercise reduces stress and has positive effects on the body. Therefore, there is a need for the development of programs and training to maintain middle-aged health, as well as the establishment of social support systems such as aging prevention programs for maintaining healthy habits. According to the study by Park and Lim [19], utilizing information about andropause has been found to be beneficial in overcoming it, suggesting the need for intervention strategies promoting self-management practices, including health management application [25]. To enhance the sense of stability during andropause through a support system, it is necessary to establish measures aimed at strengthening familial bonds and enhancing social support systems [26].

Type 4 was categorized as the type experiencing difficulties in interpersonal relationships. This type showed challenges in relationships with others, family dynamics, and a lack of confidence. This corresponds with prior research [21, 22, 27] suggesting that symptoms of male andropause also affect self-confidence, family discord, marital intimacy, and sexual harmony, as well as social conflicts. According to the study by Park and Lim [23], men experiencing symptoms of andropause tend to conceal their changes to prevent social decline, leading them to experience a sense of helplessness and solitude in the world without a support system. The psychology of happiness is generated from relationships with family (parent-child, marital, parental), relationships outside

the family (friendship, colleague), and work relationships (job satisfaction) [28]. It is suggested that enhancing middle-aged individuals' self-efficacy and simultaneously increasing social support and community consciousness within local communities would be helpful in this regard [29].

Analyzing statements commonly agreed upon or opposed by participants of Types 1, 2, 3 and 4, it was found that the shared characteristic of the agreed-upon items revolved around concerns regarding changes in metabolism, hormonal fluctuations, and dietary changes leading to weight fluctuations during the experience of andropause which is not decline but rather change [18]. Andropause can be overcome with thorough self-management and consistent personalized aging prevention programs, and appropriate preparation for middle age can turn this life transition into an opportunity for transformation [18]. Active support and encouragement for middle-aged men to provide and practice guidance for overcoming middle age are necessary to help them transition more easily over the challenging threshold into their later years [30].

After comprehensive analysis of the above results, it was determined that attitudes towards the experience and perception of andropause can vary significantly among different types. Particularly, Type 1 "Physical Changes Type", Type 2 "Psychological Changes Type" and Type 4 "Difficulty in Interpersonal Relationship Type" demonstrated a strong subjective need for change in perception regarding the experience of andropause, highlighting the necessity for self-management and education interventions.

Based on the identified types of andropause experience perception among middle-aged men in this study, it is imperative to develop tools to measure andropause coping behaviors and to conduct efficient symptom management and educational program development and evaluation tailored to the perception types of experience.

This study successfully classified the perception of andropause experiences among middle-aged men in South Korea into four distinct types, but the findings are primarily based on a specific cultural context, limiting their global applicability. As andropause is a universal phenomenon, it may manifest differently depending on cultural, social, and economic factors. In some Western cultures, perceptions and management of andropause may be influenced by various healthcare systems, social norms, and gender roles, which were not fully explored in this study. To improve the universality of the findings, future research should incorporate cross-cultural comparisons to better understand how andropause is perceived and managed in diverse global contexts.

Additionally, the study could utilize a broader and more diverse sample population to strengthen external validity. Middle-aged men from various socioeconomic backgrounds, educational levels, and family structures may experience and cope with andropause differently. Large-scale, multicultural, and longitudinal studies are needed to explore whether the four types of andropause perceptions identified in this study are consistent across other groups and how these types evolve over time.

While the study emphasizes the importance of developing educational programs and intervention strategies based on the findings, there is a lack of specific details on how these pro-

grams should be structured. Future research will place more emphasis on the importance of incorporating family-based interventions and social support systems into these programs.

Moreover, comparative studies will be conducted to explore perceptions of andropause in diverse cultural and geographical contexts. In Western cultures, where distinct healthcare infrastructures and social attitudes toward aging and masculinity exist, there is a need to understand how the experience of andropause differs. This will help determine the universality or cultural specificity of the four types of andropause perceptions identified in this study.

This study provides valuable insights into the subjective experiences of andropause among middle-aged men in South Korea, but further research is needed to enhance the generalizability and practical application of these findings. Expanding the scope of the research to include cross-cultural perspectives and a larger, more diverse sample can significantly enhance the scientific validity and global relevance of the study.

5. Conclusions

Through the results of this study, it was found that the perception of andropause among middle-aged men in South Korea can be categorized into four types: physical changes type, psychological changes type, coping with andropause type, and difficulty in interpersonal relationships type. Based on these findings, it is necessary to differentiate education and interventions for appropriate andropause coping behaviors according to each type.

Firstly, further research is needed to explore the coping behaviors associated with andropause, considering not only the general characteristics of middle-aged men but also the family dynamics, including the characteristics of their children, to provide a more holistic understanding of this life stage.

Secondly, tailored symptom management and educational programs should be developed to address the diverse coping mechanisms for andropause, integrating both medical treatments (such as hormone replacement therapy, exercise regimens, and psychological counseling) and the perception behaviors of andropause experiences observed within each type. Collaborations between medical professionals, mental health experts, and social researchers would be beneficial to create more comprehensive, multidisciplinary approaches to addressing andropause symptoms. There are targeted exercise plans to mitigate weight gain and energy loss, as well as medical treatments for issues like hair loss. These programs should include step-by-step instructions for healthcare providers and individuals on how to implement them. The recommended treatment plan for andropause in middle-aged men can include a combination of hormone replacement therapy, personalized dietary plans, and psychological counseling. Through support networks, it is crucial to reduce the stigma surrounding andropause and encourage more open conversations. Additionally, healthcare institutions should conduct regular check-ups to monitor men's health status related to andropause.

Thirdly, research is needed to develop tools that can effectively measure perception behaviors and coping mechanisms for andropause based on the types identified in this study. These tools should be empirically tested and validated

to ensure they accurately reflect men's experiences and can be integrated into medical treatment plans or psychological support programs.

Lastly, it is important to further investigate how these perception types interact with actual health management strategies, such as personalized hormone therapy, lifestyle changes, and social support systems. This will help in aligning perception types with practical health interventions and provide a more evidence-based approach to managing andropause effectively.

AVAILABILITY OF DATA AND MATERIALS

Data are available for research purposes upon reasonable request to the corresponding author.

AUTHOR CONTRIBUTIONS

SJP and YSL—study conception and design acquisition; drafting and critical revision of the manuscript; data collection; analysis and interpretation of the data; English review. SJP—discussion and conclusions, suggestions. YSL—abstract and references and final submission. Both authors contributed to editorial changes in the manuscript. Both authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Passed review by the Clinical Trial Review Committee of Sahmyook Seoul Hospital, Korea IRB No: 116286-202311-HR-01. Informed consent has been obtained from the participants involved.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- [1] Lee JG, Kim BD, Han CH, Lee KK, Yum KS. Evaluation of the effectiveness and safety of a daily dose of 5mg of tadalafil, over an 8-week period, for improving quality of life among Korean men with andropause symptoms, including erectile dysfunction: a pilot study. *Medicine*. 2018; 97: e13827.
- [2] Kim SW, Oh SJ, Paick JS, Kim SC. Development of the Korean-translation of androgen deficiency in aging males (ADAM) questionnaire. *Korean Journal of Urology*. 2004; 45: 674–679.
- [3] Martelli M, Zingaretti L, Salvio G, Bracci M, Santarelli L. Influence of work on andropause and menopause: a systematic review. *International Journal of Environmental Research and Public Health*. 2021; 18: 10074.
- [4] Lee MW, Park H. A study on late-onset of hypogonadism, erectile dysfunction, depression, and quality of life among middle-aged male worker. *Korean Journal of Adult Nursing*. 2013; 25: 483–493.
- [5] Abootalebi M, Kargar M, Aminsharifi A. Assessment of the validity and reliability of a questionnaire on knowledge and attitude of general practitioners about andropause. *The Aging Male*. 2017; 20: 60–64.
- [6] Rezaei N, Azadi A, Pakzad R. Prevalence of andropause among Iranian men and its relationship with quality of life. *The Aging Male*. 2020; 23: 369–376.
- [7] Khosravi S, Ardebili HE, Larijani B, Nedjat S, Nikbakht Nasrabadi A, Ardebili ME, *et al*. Are andropause symptoms related to depression? *Aging Clinical and Experimental Research*. 2015; 27: 813–820.
- [8] Afsharnia E, Pakgozar M, Khosravi S, Haghani H. The quality of life and related factors in men with andropause. *Journal of Hayat*. 2016; 22: 38–49.
- [9] Kaplan HS. Sex, intimacy, and the aging process. *The Journal of the American Academy of Psychoanalysis*. 1990; 18: 185–205.
- [10] Hakimi S, Ghasemi L, Mirghafourvand M, Hassanzadeh K, Ghasemi F. The prevalence of andropause symptoms and the role of social determinants of health on its severity in healthy men: a community-based study in Northwest Iran. *Crescent Journal of Medical and Biological Sciences*. 2019; 6: 341–345.
- [11] Diamond J. *Male menopause*. 1st edn. Sourcebooks, Inc: Naperville, IL. 1997.
- [12] Kim HK. *Q Methodology: Philosophy, Theories, Analysis, and Application*. Korean Edition Communication Books: Seoul. 2008.
- [13] Kwo IY, Kim CY, Kim HJ, Shin YJ, Lee DK, Jang HH, *et al*. The experience of andropause. *Ewha Nursing*. 2018; 52: 27–43.
- [14] Jeon HW, Kim SA. A phenomenological convergence study on the experience of middle-aged men menopause. *Journal of the Korea Convergence Society*. 2017; 8: 217–229.
- [15] Kim KE, Kwak K, Min HY, Choi J, Jeon SY. An investigation into mid-life as it is perceived by middle aged Korea men. *The Korean Journal of the Human development*. 2011; 18: 135–155.
- [16] Cho GY, Seo MY. Relationship between andropause syndrome and health-related quality of life in middle-aged males in South Korea: family bond as a mediator. *Korean Journal of Adult Nursing*. 2022; 34: 424–434.
- [17] Kim GM. Late-onset hypogonadism. *Korean Journal of Family Practice*. 2013; 3: 245–254.
- [18] Jannini EA, Nappi RE. Couplepause: a new paradigm in treating sexual dysfunction during menopause and andropause. *Sexual Medicine Reviews*. 2018; 6: 384–395.
- [19] Park SJ, Lim YS. Challenges and experiences of men who have undergone andropause: Insights from a focus group study. *Korean Journal of Adult Nursing*. 2023; 35: 290–301.
- [20] Jo NH, Seong CH. Effects of stress and self-esteem on depression in middle-aged women and middle-aged men. *Journal of the Korea Convergence Society*. 2016; 7: 89–97.
- [21] Attia AA, Hassan FA, Kamel MI, Ayoub MR. Quality of life in erectile dysfunction patients and their partners responding to tadalafil versus sildenafil citrate. *Egyptian Journal of Dermatology and Venereology*. 2013; 33: 32–36.
- [22] Jeong YS. A phenomenological study on psychological crisis experience of married middle-aged men. *Counseling Research*. 2021; 22: 101–131.
- [23] Park YJ, Baek SI, Shin HJ, Yoon JW, Cheon SH, Moon SH. Anger, cardiovascular health and depression in middle-aged Korean men: the mediating effect of social support. *Journal of Korean Academy of Nursing*. 2006; 36: 863–871. (In Korean)
- [24] Oh YS, Kwak IS, Ha MS. Effects of combined exercise on stress hormone, heart muscle damage indices, lipid peroxides and antioxidant enzyme in older male. *Exercise Science*. 2013; 22: 125–132.
- [25] Park JY, Son JT. Development and evaluation of a self-management mobile app for adults with osteoarthritis. *Journal of Korean Academy of Community Health Nursing*. 2022; 33: 114–127.
- [26] Kim YS. Factors influencing depression in late middle-aged men. *Journal of the Korea Convergence Society*. 2021; 12: 377–387.
- [27] Bai WJ, Li HJ, Jin JJ, Xu WP, Sebastian S, Wang XF. A randomized clinical trial investigating treatment choice in Chinese men receiving

- sildenafil citrate and tadalafil for treating erectile dysfunction. *Asian Journal of Andrology*. 2017; 19: 500–504.
- [28] Kwak GJ. The relationship between happiness levels of middle-aged male workers with family relationships, non-family relationships and job satisfaction. *Human Development Research*. 2022; 118: 115–133.
- [29] Lee H, Cho SH, Kim JH, Kim YK, Choo HI. Influence of self efficacy, social support and sense of community on health-related quality of life for middle-aged and elderly residents living in a rural community. *Journal of Korean Academy of Nursing*. 2014; 44: 608–616. (In Korean)
- [30] Asadollahi A, Saberi LF, Faraji N. Validity and reliability of male andropause symptoms self-assessment questionnaire among elderly males in Khuzestan province of Iran. *Journal of Mid-Life Health*. 2013; 4: 233–237.

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