Perceived Therapeutic Purpose of Medication Usage in Older Adults

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Running Head: MEDICATION PURPOSE

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Abstract

There remains a paucity of information regarding individuals' knowledge of the therapeutic purpose of their medication. Perceived therapeutic purpose of cardiovascular medications (CVD) and central nervous system medications (CNS) were compared to the medications' prescribed therapeutic purpose for a sample of older adults (N=815, n=449 males, n=366 females). Individuals who reported using CVD medications were more likely to overgeneralize the medications' perceived purpose beyond the medications' actual purpose. Those who used CNS medications were less likely to overgeneralize the purpose of their medication; however, they were more likely to incorrectly identify the purpose of their CNS medications.

Perceived Therapeutic Purpose of Medication Usage in Older Adults

Patients' knowledge of the therapeutic function of their prescription medications is a prerequisite, although not sufficient in of itself, to ensure compliance (Ascione, Kirscht, Shimp, 1986; Becker, 1979; Conrad, 1982). Older patients generally know less about the nature of their illness and purpose of their medications than younger adults (German, Klein, McPhee, & Smith, 1982). Nonetheless, there still remains a paucity of information regarding the association of patients' age and their knowledge of the therapeutic purpose of their medication (Bazargan & Barbre, 1992).

The present study examined the accuracy of the perceived therapeutic purpose (PTP) of medications for 815 participants across the adult life-span. Participants' PTP of cardiovascular medications (CVD) and central nervous system medications (CNS) were compared to the medications' actual therapeutic purpose (ATP) for older adults. CVD and CNS medication categories were examined because they are two of the most commonly prescribed drugs (Baum, Kennedy, Knapp, Juergens, & Faich, 1988; Bosworth, Maitland, & Schaie, 1993). Females were hypothesized to be more accurate in their PTP for both CVD and CNS medications. In addition, it was speculated that older adults would have less correspondence between PTP and ATP for both CVD and CNS medications than younger adults.

Method

Participants

The present study examined prescription medication usage in a sample of 449 males and 336 females (N=815) with a mean age of 70.2 (range 43-92 years) at the time of testing in 1991. Four age-cohorts of participants were examined (oldest-old (78 - 92), old-old (71-77), young-old (64-70) and middle-age (43-63). The sample represented a wide range of educational (M=14.15 years, sd=3.08) and incomes (M=$25,400, sd=4.58) levels. Participants were drawn from the Seattle Longitudinal Study (SLS), a longitudinal-sequential study of cognitive development across adulthood (Schaie, 1983; 1993). Participants of the SLS were selected randomly by gender and age-cohort from the membership of a large Health Maintenance Organization (HMO) in the Seattle area. A description of the sample as a function of age-cohort is provided in Table 1.

Insert Table 1 about here

Procedures and Measures

Participants brought all prescription medications taken regularly for at least one month to the testing session. The name of the medication, dosage level, subjects' perceived therapeutic purpose (PTP) for the medication, and physicians' instructions for each medication were recorded by the experimenter. Each medication was classified according to the American Hospital Formulary Service (1991) coding scheme.

Results

The unit of analysis for the present investigation was the individuals' medication response. Individual PTP responses were classified according to their degree of correctness as accurate, inaccurate, and overgeneralized for CVD and CNS medications. The PTP was considered accurate when the PTP and ATP corresponded correctly for CVD (see Appendix A) and CNS (see Appendix B). If the PTP did not correspond with the ATP of the medication the response was categorized as inaccurate. If a type of medication other than CVD or CNS was reported but the PTP corresponded correctly to CVD or CNS responses the response was categorized as overgeneralized. These responses made by individuals were classified according to the age-cohort of the individual who made the response.

Chi-square analyses were used to examine differences in the degree of correctness in PTPs with respect to gender, age-cohort, income, education. Results will be presented independently for each medication and only significant results ($p < .05$) will be described in the text. First, the overall relation between the medication type and the degree of correctness of PTP will be described. Second, the degree of correctness of PTP in relation to gender, age-cohort, income, and education will presented.

CVD Medications

A significant difference was found between the reported use of CVD and accurately reporting its PTP ($X^2[1]=30.76$, $p < .0001$). As shown in Figure 1, 56% of the CVD observations reported the

correct PTP for their medication, while 6% were reported as inaccurate and 38% percent were reported as overgeneralized.

Insert Figure 1 about here

A significant difference was found between age-cohort and the degree of correctness in reporting CVD's PTP ($X^2[6]=20.123$, $p < .003$). The oldest-old adults were on average the most accurate in their PTPs and the least likely to report inaccurate PTPs, as shown in Figure 2. However, the young-old were the most likely to overgeneralize the therapeutic purpose of their medication (40.83%).

Insert Figure 2 about here

CNS Medications

A significant difference was found between CNS usage and degree of correctness for PTP ($X^2[1]=285.86$, $p < .0001$). Twenty percent of the CNS observations reported the correct PTP for the medication, while 69% were reported as inaccurate and 10% were reported as overgeneralized, as shown in Figure 3.

Insert Figure 3 about here

There was a non-significant trend between gender and the degree of correctness in the PTP of their CNS medications ($X^2[2]=5.196$, $p < .074$). There were 381 out of 550 (69.27%) inaccurate responses made by individuals. As shown in Figure 4, females were more accurate than males on PTP and males were more likely to be inaccurate than females. In addition, females were more likely to overgeneralize the PTP than males.

Insert Figure 4 about here

The difference between age-cohort membership and the degree of correctness for PTP and CNS medications was significant ($\underline{X}^2[6]=27.221$, $\underline{p}<.0001$). As shown in Figure 5, the oldest-old adults were on average the most accurate in their PTPs, the least likely to report inaccurate PTPs, and most likely to overgeneralize PTPs.

Insert Figure 5 about here

Discussion

Individuals who reported using CVD medications overgeneralized the purpose of their prescribed medications to additional types of medications. In contrast, those who used CNS medications were less likely to overgeneralize the purpose of their medications. However, individuals taking CNS medications were more likely to be inaccurate in their PTP of their CNS medications. There was support for the hypothesis that females were more accurate in their PTP for CNS medication. However, there was a lack of evidence for the hypothesis that older adults would have less correspondence between PTP and ATP purpose for both CVD and CNS medications than younger adults.

The results raise two important issues. First, the CNS medications may impair memory processes resulting in incorrectly remembering the PTP of their medication. Second, the inaccurate recollection may not be a side effect of the medication. Instead, the memory failures might be a product of the time interval elapsed since the medication was initially prescribed. All participants in the present study were taking their medication for at least one month and McGuire (1993) reported that a significant amount of medical information is forgotten over this interval. Additional research needs to be conducted to tease apart these two issues.

The present research has implications for researchers and practioners. Accurately remembering the therapeutic purpose of medications is important for medication compliance. Additional research should examine the link between understanding the purpose of medications and compliance.

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APPENDIX A

Therapeutic Purpose of Cardiovascular Medication

Heart attacks, chest pain, and heart condition

Anticoagulant, "blood thinner"

Blood pressure

Hypertension

Problems with extremities (arms, legs, hips), phlebitis

Stroke, hardening of the arteries, blood clot

Circulation

APPENDIX B

Therapeutic Purpose of Central Nervous Agents

Mental illness

Muscle relaxant

"Nerves", nervous condition, nervous exhaustion, psychological problems

Headaches, migraines

Depression, depressive disorders

Sleep disorders

Seizures or other brain-related disorders

For memory

Dizziness, nausea

Palsy, shaking limbs

Narcolepsy

Parkinson's disease

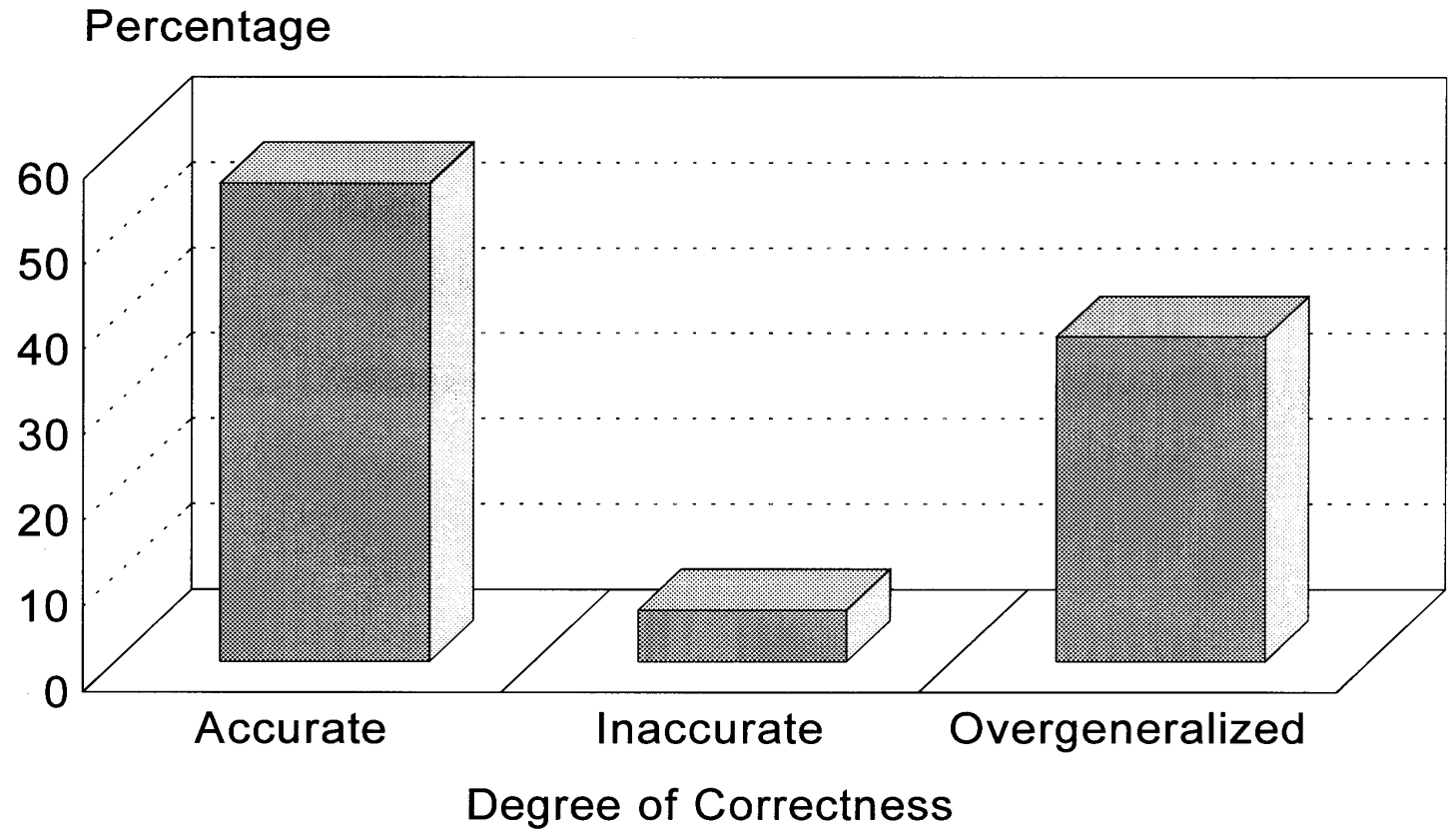
Table 1

A Description of the Sample as a Function of Age-cohort

	Middle-aged	Young-old	Old-old	Oldest-old
Gender				
Male	102	117	102	127
Female	111	101	65	89
age				
	M=54.57	M=67.32	M=73.95	M=81.62
	sd=6.92	sd=1.79	sd=1.99	sd=3.04
	43-63	64-70	71-77	78-92
Education	M=13.11	M=13.92	M=14.60	M=14.79
	sd=5.15	sd=3.10	sd=2.80	sd=2.80
	1-20	2-30	9-20	1-20
Income	M=18,870	M=24,000	M=28,260	M=29,836
	sd=5.15	sd=4.15	sd=3.52	sd=3.55
	2,000-34,000	4,000-34,000	2,000-34,000	4,000-34,000
Medications				
CVD	216	167	218	213
CNS	200	105	123	122

Cardiovascular Medication

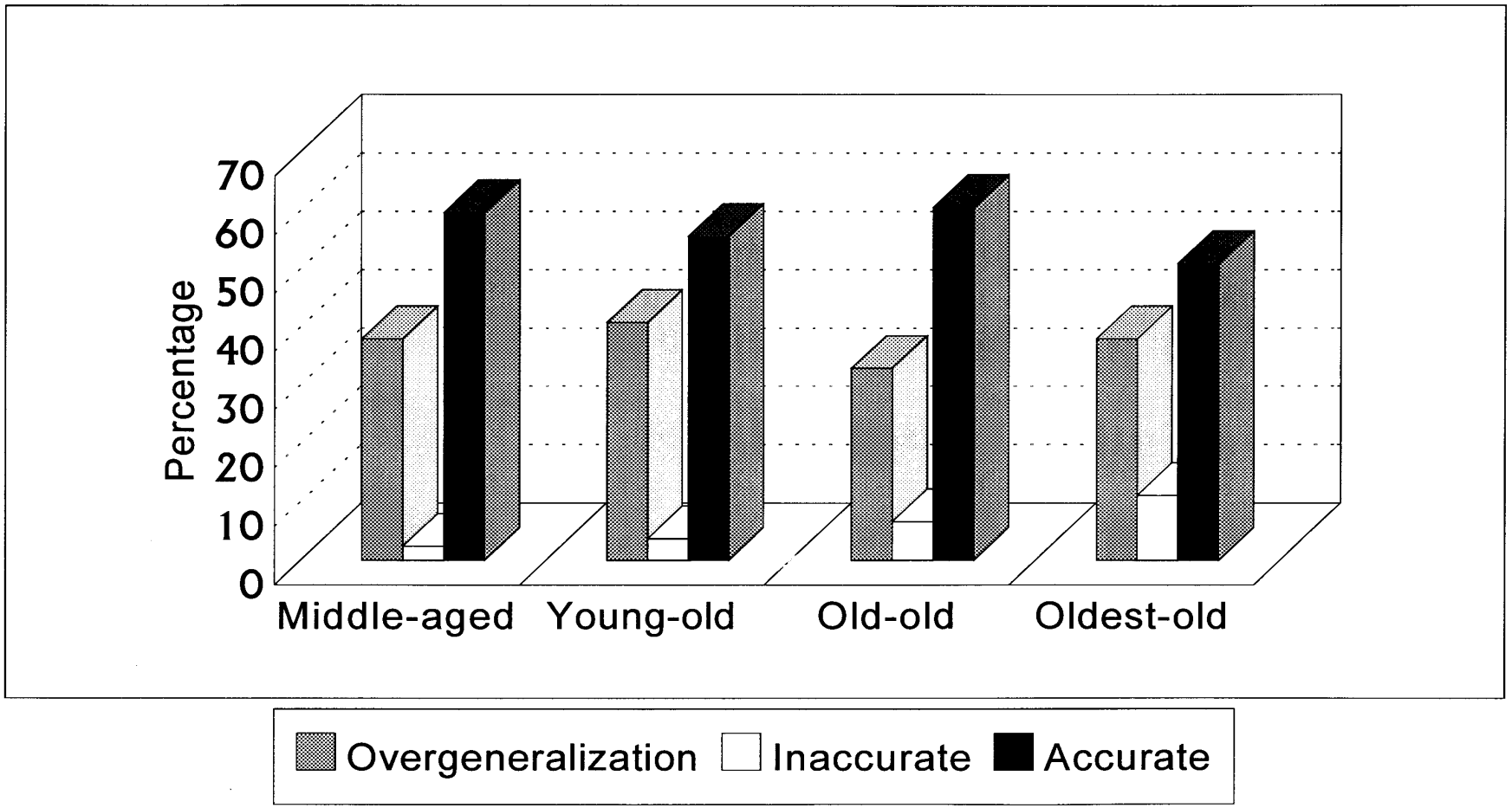
Figure 1



Chi-square [1]=30.76, p<.0001

Cardiovascular Medication by Age-cohort

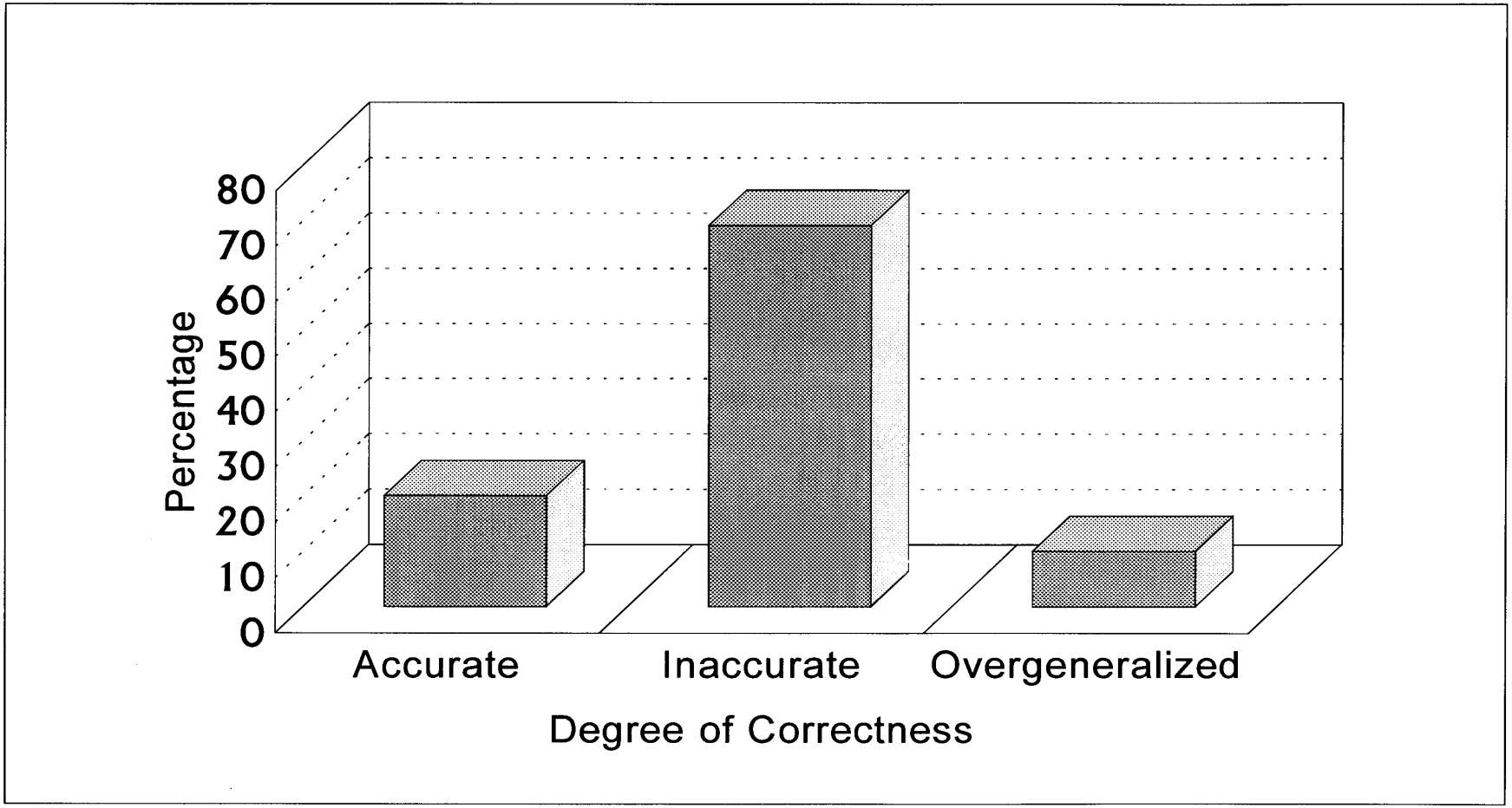
Figure 2



Chi-square[6]=20.12, p<.003

Central Nervous System Medications

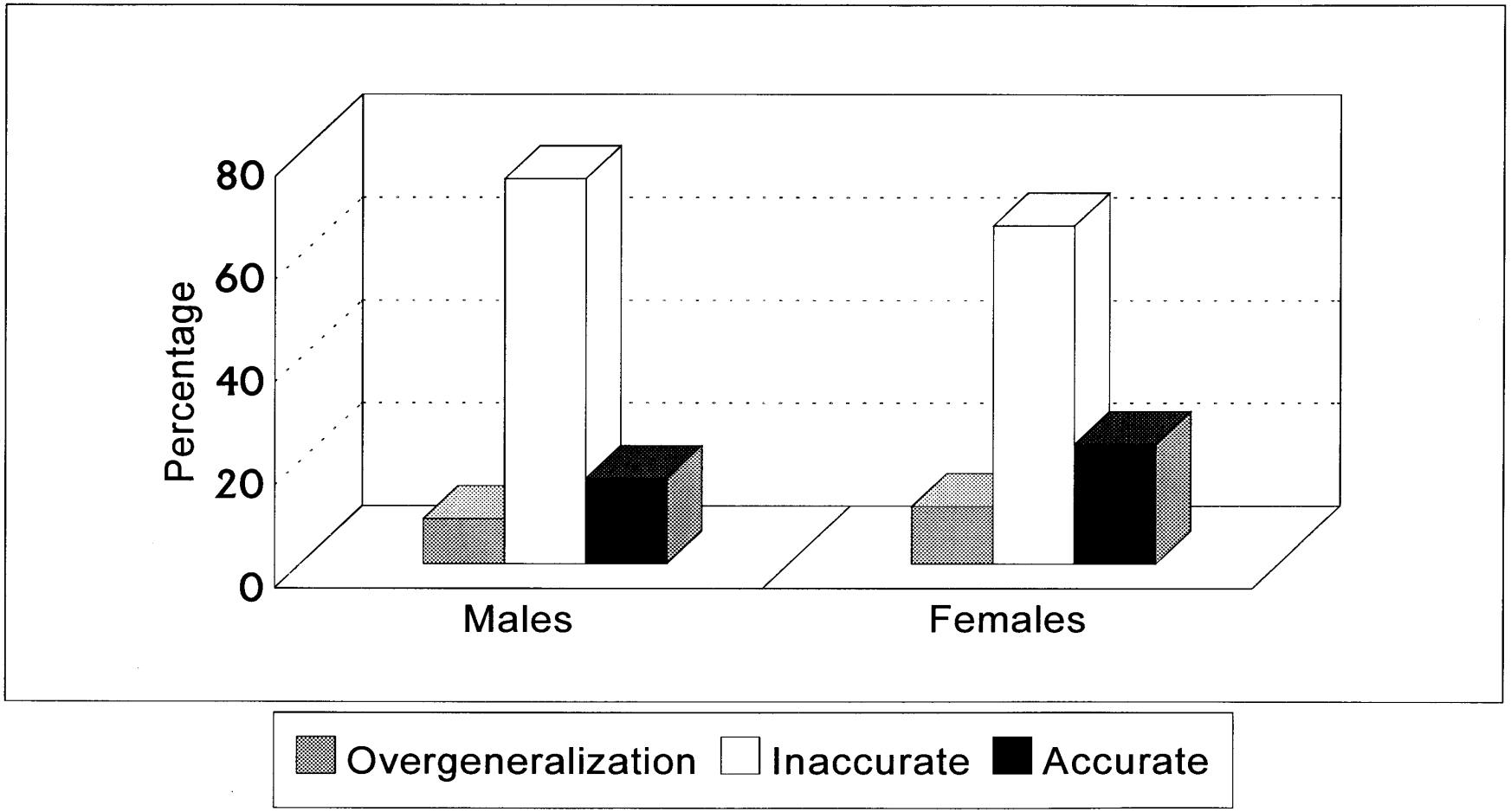
Figure 3



Chi-square[6]=285.86 p<.0001

Central Nervous System Medications by Gender

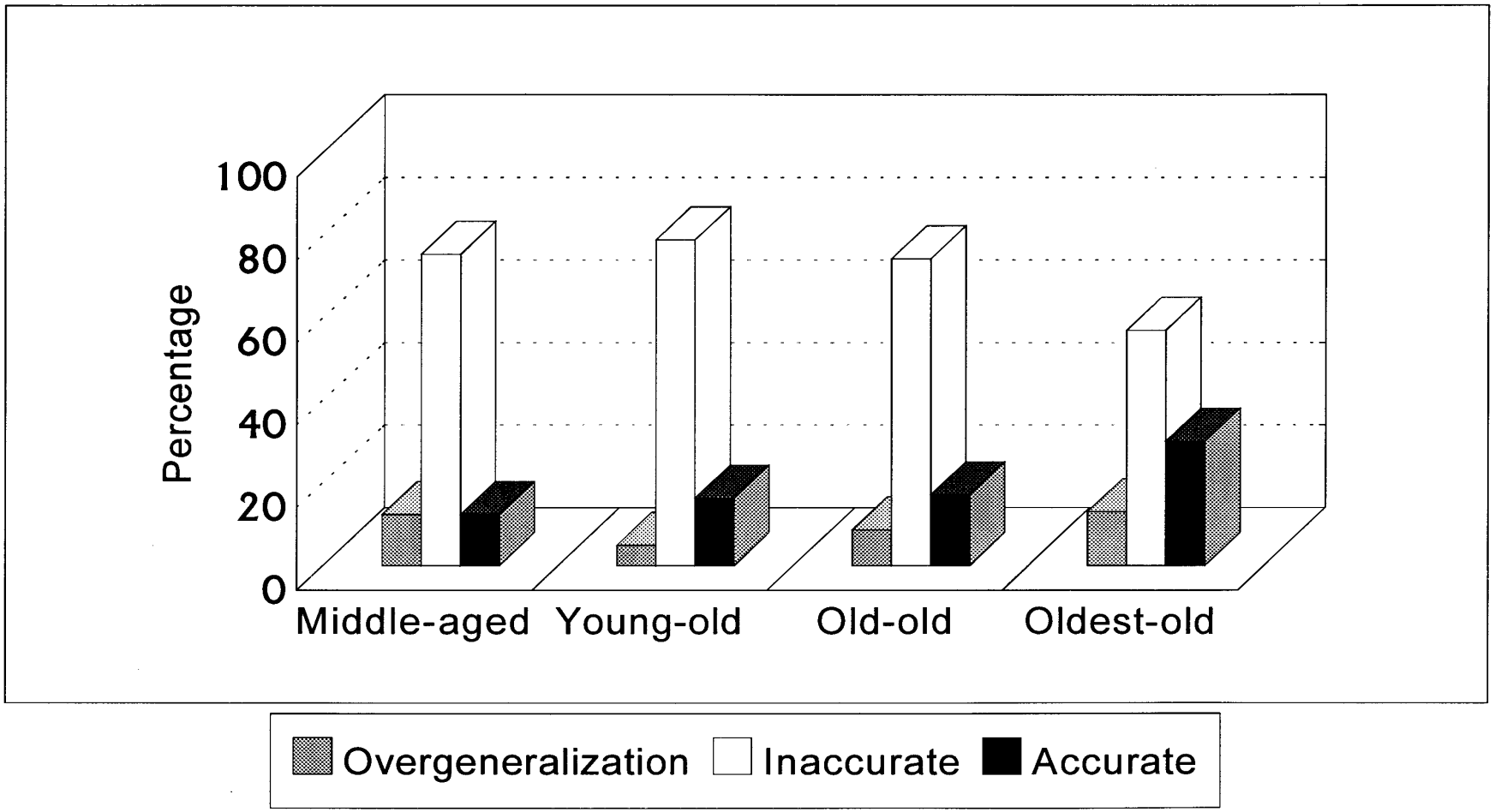
Figure 4



Chi-square[2]=5.20, p<.074

Central Nervous System Medications by Age-cohort

Figure 5



Chi-square[6]=27.22, p<.0001