

Attributable fraction among the exposed

In epidemiology, **attributable fraction among the exposed** (AF_e) is the proportion of incidents in the exposed group that are attributable to the risk factor. The term **attributable risk percent among the exposed** is used if the fraction is expressed as a percentage.^[1] It is calculated as $AF_e = (I_e - I_u)/I_e = (RR - 1)/RR$, where I_e is the incidence in the exposed group, I_u is the incidence in the unexposed group, and RR is the relative risk.^[2]

It is used when an exposure increases the risk, as opposed to reducing it, in which case its symmetrical notion is preventable fraction among the unexposed.

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Synonyms

Multiple synonyms of AF_e are in use: attributable fraction,^{[1][3]} relative attributable risk,^[1] attributable proportion among the exposed,^[1] and attributable risk among the exposed.^[4]

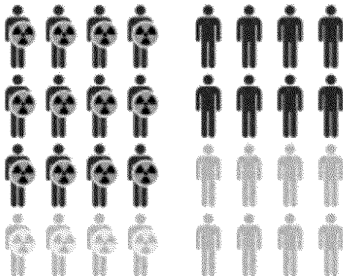
Similarly, attributable risk percent (ARP) is used as a synonym for the attributable risk percent among the exposed.^[3]

In climatology, fraction of attributable risk (FAR) is used to denote a proportion of adverse event risk attributable to the human influence on climate or other forcing factor.^[5]

Numerical example

Example of risk increase

Quantity	Experimental group (E)	Control group (C)	Total
Events (E)	$EE = 75$	$CE = 100$	175
Non-events (N)	$EN = 75$	$CN = 150$	225
Total subjects (S)	$ES = EE + EN = 150$	$CS = CE + CN = 250$	400
Event rate (ER)	$\underline{EER} = EE / ES = 0.5$, or 50%	$\underline{CER} = CE / CS = 0.4$, or 40%	—



Group exposed to a risk factor (left) has increased risk of an adverse outcome (black) compared to the unexposed group (right). In the exposed group, one third of the adverse outcomes can be attributed to the exposure ($AF_e = 1/3$).

Variable	Abbr.	Formula	Value
Absolute risk increase	ARI	$EER - CER$	0.1, or 10%
Number needed to harm	NNH	$1 / (EER - CER)$	10
Relative risk (risk ratio)	RR	EER / CER	1.25
Relative risk increase	RRI	$(EER - CER) / CER$, or $RR - 1$	0.25, or 25%
Attributable fraction among the exposed	AF_e	$(EER - CER) / EER$	0.2
Odds ratio	OR	$(EE / EN) / (CE / CN)$	1.5

See also

- Population Impact Measures
- Attributable fraction for the population

References

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